Journal OF THE AMERICAN DIETETIC ASSOCIATION

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Dealing in a Habit Clinic with Eating Problems of Children

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CONTENTS, AUGUST 1949

EFFECT OF MATERNAL NUTRITION UPON PREGNANCY AND THE NEWBORN—*Clement A. Smith*, M.D. 665

NEW YORK STATE NUTRITION SURVEY. II. A One-Day Study of Food Intake of Adults—*Martha Trulson, D. Mark Hegsted, and Frederick J. Stare* 669

CULTURAL PATTERNING OF NUTRITIONALLY RELEVANT BEHAVIOR—*Margaret Mead*, Ph.D. 677

NUTRITIONISTS AND SOCIAL WORKERS COOPERATE ON MUTUAL PROBLEMS—*Ethel Walsh* 681

DAILY FOOD COST ACCOUNTING—Why and How—*Doris Parks*, C.P.A. 684

EFFECT OF LARGE-SCALE METHODS OF PREPARATION ON THE VITAMIN CONTENT OF FOOD. IV. Corn—*Frank Streightoff, Benami Bendor, Hazel E. Munsell, Martha Louise Orr, Sarah R. Ezekiel, Mary Haines Leonard, Margaret Emma Richardon, and Frederick G. Koch* 687

EDITORIAL

Colorful Colorado—*Mabelle V. Williams* 692

Violet M. Ryley—*Irene Irwin Clarke* 692

Mary A. Lindsley—*Frances A. Burns* 694

CURRENT COMMENT

Dealing in a Habit Clinic with Eating Problems of Children—*Hedwig Rebecca Poehler* 696

Revision of A. D. A. Constitution—*Anna Boller Beach* 695

Advance Convention Program Notes 695

BOOK REVIEWS 704

CURRENT LITERATURE 706

NEWS NOTES 712

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Effect of Maternal Nutrition upon Pregnancy and the Newborn[1]

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TWO-THIRDS of all the deaths of babies before the first birthday are concentrated in the two weeks immediately following birth. The first two weeks take a larger toll of life than do the fifty that follow. For each one of these early deaths of live-born babies, about one potentially viable baby dies before it is even born. Taken together, the early (or neonatal) deaths in live-born infants plus the stillborn infants, comprising what are called "fetal losses," come from conditions more apt to be preventable than curable. Obviously, any handle we can grasp and use to prevent stillbirths and neonatal deaths (or premature births, congenital malformations, and other undesirable results of pregnancy) is of the greatest interest to us who are concerned with the life and well-being of the unborn and newborn child.

Studies in the field of nutrition have strongly suggested that such a handle—and an important one—may be found in the maternal diet. It should be understood right away that in discussing the possible ill-effects of the mother's food habits on her baby's health we are not thinking of specific nutritional deficiences. Thus, we do not mean at all, for instance, that if a mother eats a diet low in ascorbic acid she will be apt to give birth to an infant afflicted with scurvy. Actually, such direct evidences of specific nutritional lacks are practically non-existent in the newborn period. It would be much easier to trace such things as classical scurvy (should it be seen in newborn life) back to glaring lack of the specific preventive food in the mother's diet, than it is to say that a baby is born dead because something was wrong with what the mother had to eat. Stillbirths and neonatal deaths are pretty non-specific occurrences. Therefore, we need to consider the facts very carefully before linking fetal and infant deaths to defective maternal diet in a proved cause and effect relationship.

Nevertheless, there is considerable evidence that bad maternal diets and unsatisfactory results of pregnancy go hand in hand, and we are eager to obtain more. Until we get more evidence, we must look carefully at that which we do have, to see what it suggests in the way of preventive pediatrics. Assuming that you are familiar with the earlier literature (1), I should like to discuss briefly the implications of two fairly recent studies (2, 3) and of a third in which I happened personally to participate (4).

ENGLISH INVESTIGATIONS

The often-quoted first report of the People's League of Health in England was published in 1942 (5). The final report, published in 1946 (2), showed that when the diets of a large number of pregnant women getting prenatal care in certain London hospitals were improved, there resulted a lowering of the incidence of maternal toxemia, rather slight decreases in stillbirths and premature births, and no decrease in deaths of newborn infants. This is, on the whole, a gratifying but not a very striking result.

On the other hand, Balfour's report of 1944 (3), based on thousands of women living in *extremely poor* circumstances in the depressed areas of England, showed that supplementing the diets of those mothers produced a quite significant decrease in the numbers of both stillbirths and neonatal deaths. That conditions must have been very bad indeed is indicated by the statistics concerning the improvement effected in these pregnancies. As a yardstick, let me tell you that in our own Lying-in Hospital, the fetal loss is about 38 per thousand pregnancies. In this British study by Balfour, not 38 but about 73 of every thousand pregnancies (in the control group) ended in a dead baby—born dead or dying in the newborn period. With supplementation of the diet, about 50 out of every thousand pregnancies terminated in a dead baby. This was a fairly striking betterment, and on the whole rather more satisfying than that achieved by working with women in London hospitals. The moral seems to be that if you work in areas where the nutritional conditions are really

[1] Presented at the 31st Annual Meeting of the American Dietetic Association in Boston, on October 21, 1948.

very bad, you have a better chance of bringing about definite improvement in fetal mortality by nutritional measures than if you work where you only have the opportunity of bringing fair diets up to good ones.

NEED FOR CONTROLLED CONDITIONS FOR STUDIES

All of us who have followed analyses of the relationship between the outcome of pregnancy and the history of a good or bad diet have racked our brains for some sort of experimental approach to indicate conclusively just how large is the single factor of diet in bringing about a successful or a tragic result of pregnancy. Supplementation seems to offer the kind of evidence we seek—that is, by maintaining all factors in pregnancy as before except the food intake, improving that by an added supplement, and seeing whether the results of the pregnancy are significantly improved or not. But this is easier said than done. One can never be quite certain that the woman on the supplement will eat the supplement, consistently, or will eat it all. On the other hand, it is all too apparent from experience that when people become interested in one aspect of their health, they may also become interested in others which we would (for such a study as this) prefer to have them leave unchanged. Finally, if we are to learn completely and fully what improved diets can do to improve the course and result of pregnancy, the supplementation should begin just as soon as the woman becomes pregnant—if not, indeed, actually before. Unfortunately mass studies involving supplements don't begin until a woman is one or two months pregnant and presents herself at a clinic.

Occasionally there occur unusual situations that may help us discover the effects of diet. If we knew the statistics concerning rate of fetal loss in a whole community, and then something happened to that community so that every woman, pregnant or not pregnant, whatever the state of her germ plasm, the amount of previous disease in her history, the adequacy or inadequacy of her medical or prenatal care—where, to repeat, *every* woman was suddenly able to consume a very much improved diet—or, on the other hand, had to consume a very inadequate diet, then we might learn (from statistics about their babies) some important facts as to the effect of nutrition as divorced from all other factors in the background of material and fetal health.

TABLE 1

Deaths from undernutrition (all ages) in The Hague, Rotterdam, and Amsterdam, showing effects of nutritional stringency in northwestern Holland up to liberation on May 15, 1945

MONTH (1945)	DEATHS		
	The Hague (population 500,000)	Rotterdam (population 650,000)	Amsterdam (population 700,000)
January	173	125	
February	552	548	
March	644	837	
April	442	843	
May	244	244	
June	90		
Total	2145	2597	2351*
Weekly average, January to May	104	136	

* From November 1, 1944 to July 1, 1945.

RESULTS OF DUTCH HUNGER WINTER DURING WAR

When it appeared in 1945 that the inhabitants of northern Holland had been subjected to a state of near starvation during a whole winter—a winter in which practically no city-dwelling woman could secure an adequate diet—this situation seemed to offer a tragic experiment which might tell us something about the effects of a sweeping change in nutrition upon pregnant women and their unborn infants.

The Nutrition Foundation financed a trip to Holland for research on this question, the results of which showed certain findings which we felt to be illuminating (4, 6). These can best be shown in charts and tables.

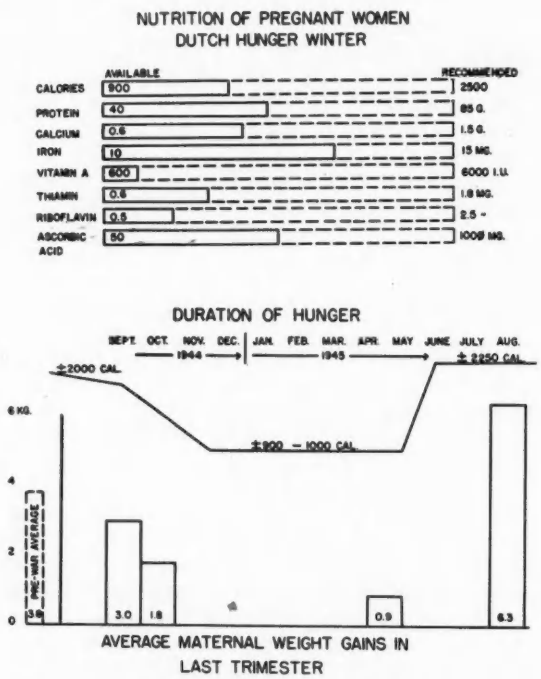

FIG. 1. *Top: A comparison of the Recommended Dietary Allowances with amounts actually available to Dutch women during the winter of 1944–45* (8). *Bottom: Chronology of the Dutch hunger-winter. The blocks below the line represent food intake and indicate the average maternal weight gain in the last three months of pregnancy in the periods before, during, and after the hunger-winter.*

In the first of these (Table 1) is shown one effect of the stringent nutritional circumstances in the winter of 1944–45 in the large cities of northwestern Holland—Rotterdam, Amsterdam, and The Hague. In the second (Fig. 1), the food available to pregnant women is compared with the recommended standards. The chronology of the hunger winter and the effect of nutritional inadequacy upon the weight gain of pregnant women before, during, and after the period under study are shown at the bottom of this figure.

One of the most outstanding effects of the acute undernutrition was the production of amenorrhea and, presumably, infertility in women of child-bearing age. There may, of course, have been other reasons than hunger to explain the amenorrhea, but the same phenomenon has been reported as a starvation effect by observers elsewhere (6). In any case, Figure 2 indicates that the expected birth rate in the city of Rotterdam showed a decline closely paralleling the decline in available food, but occurring about nine months later.

That the weights of infants at birth declined as maternal undernutrition became more severe and prolonged is shown by the percentile distributions of birth weights diagrammed in Figure 3. It is noteworthy that as the winter of hunger continued, the birth weights fell until the period beginning in mid-February (2/15–3/31 at top of diagram) but were no lower during the next six weeks (4/1–5/15). Conversely, it is noteworthy that the weight rose most rapidly in the first six weeks following the return of food (5/16–6/31). These facts, most reliably portrayed by the middle line representing the mean or fiftieth percentile of birth weight, strongly suggest that birth weight is affected by the maternal food intake mainly *late* in pregnancy. Changes in length at birth are for several reasons less apt to be clear cut. The data portrayed by Figure 4 indicate that the infants born during the seven and a half months of severe maternal undernutrition were shorter than those born in previous years and in the weeks and months following the return of food.

Although the rather complicated figures published elsewhere (4, 6) will not be presented here, analyses of the frequency of unsatisfactory outcome of pregnancy showed surprisingly little deviation from the rates prevailing in times of more normal dietary circumstances. They did not indicate a relationship between the extreme undernutrition of these pregnant women and any increased occurrence of stillbirth, or neonatal death. There was a slight increase in prematurity and in births of infants with congenital abnormalities, but the decrease in fertility and the much smaller number of births available for study caused the small differences found to be of no statistical significance.

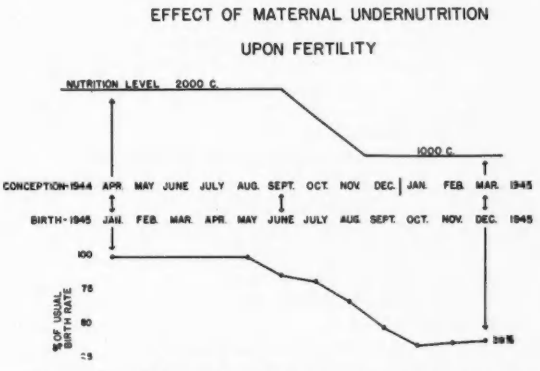
EFFECT OF MATERNAL UNDERNUTRITION
UPON FERTILITY
NUTRITION LEVEL 2000 C.
1000 C.
CONCEPTION-1944 APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC. JAN. FEB. MAR. 1945
BIRTH-1945 JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC. 1945
% OF USUAL BIRTH RATE

FIG. 2. *Parallelism between caloric intake and conceptions, as indicated by birth rate in Rotterdam nine months after hunger period (figures from the Rotterdam Bureau of Statistics).*

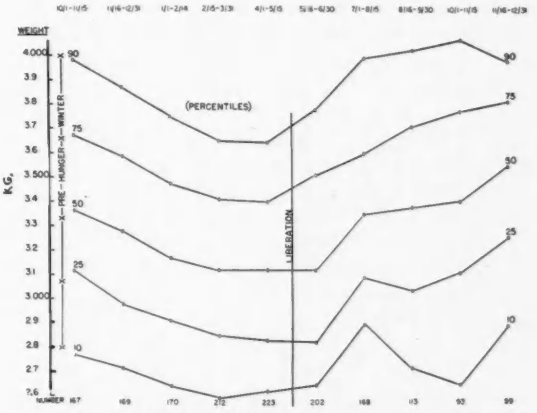

FIG. 3. *Distribution of birth weights by percentile in The Hague and Rotterdam in 1944 and 1945. The 50th percentile is the median; the 90th percentile represents the level beneath which 90 per cent of the weights fell, and so on. Crosses at left indicate the distribution of percentiles for birth weights in the previous winter.*

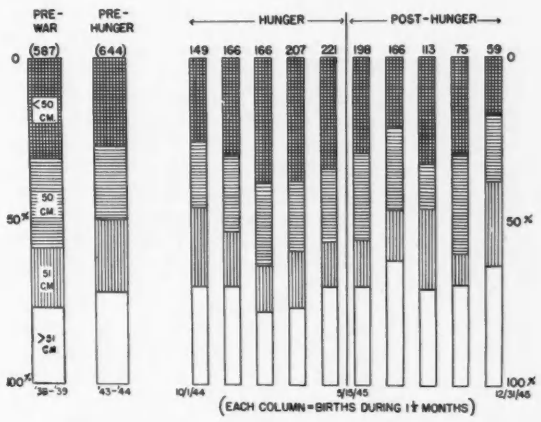

FIG. 4. *Birth lengths of 1533 Dutch babies born in Rotterdam and The Hague before the war, before the hunger-winter, and (in successive periods of six weeks each) during and after the hunger-winter. The general increase in percentage of infants of less than 50 cm. (at top) is clearly shown.*

Does this mean that maternal nutrition is only reflected in the weight and length of the fetus and has no relationship to its physical integrity or survival? It might seem so, but actually I think the facts more strongly support another interpretation. These women in Holland were *acutely undernourished*. Acute undernutrition may very probably have one set of effects—largely upon the size of the fetus. The Dutch women were apparently not *chronically malnourished* (like the women in depressed areas of England or, indeed, in those areas of Boston where women live on tea, tonic, and potatoes). Chronic malnutrition as the background of a pregnancy may lead to another sort of result altogether.

CONCLUSIONS

The better the general level of food intake in a community, the less is the likelihood of producing better babies by still further improving maternal diet.

Maternal diet, in terms of *quantity* during pregnancy, has a broad effect on the size of the infant. This is especially true of the food intake late in pregnancy, when development of the fetus is over, and growth is the only process occurring.

Effects on the viability of the fetus, its maturity or prematurity at birth, perhaps even to some extent its freedom from malformations, are more likely to be produced by long-term *mal*nutrition than by acute *under*nutrition in pregnancy. The nutritional state of the mother at conception may well be as important as any changes which can be brought about by dietary work in the prenatal clinic once her pregnancy is well under way.

It, therefore, seems that the most fruitful work in nutrition as related to pregnancy would be that done in regions where very poor dietary habits prevail and so aimed as to affect women of childbearing age in general, rather than directed only at those attending maternity clinics.

Evaluation of effects of diet alone, independent of numerous other maternal factors, such as general hygiene, past history of disease, state of germ plasm, and so on, is extremely difficult to obtain and must be based upon the most painstaking work of the nutritional scientist, but is, nevertheless, very badly needed.

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Thiamin or Thiamine?

Periodically I am asked whether vitamin B_1 should be referred to as "thiamin" or "thiamine." The following history may be of interest.

I suggested "thiamin" in 1937 in response to a request from the Council on Pharmacy and Chemistry of the American Medical Association. This was adopted (see J. A. M. A. 109: 952, 1937). The name so appeared in this journal and in other publications of the A.M.A. for two or three years, including the 1940 edition of "New and Non-Official Remedies."

Under date of July 3, 1939, E. Fullerton Cook, chairman of the Committee of Revision of the Pharmacopoeia of the United States, wrote me a letter which included the following paragraph:

"You may wonder why the Pharmacopoeia has suggested the use of this title, when 'Thiamin Chloride' had already been widely used. The pharmacopoeial group recognized that Thiamine Hydrochloride had, essentially, the characteristics of an alkaloid, and the use of the final 'e' and 'Hydrochloride' rather than 'chloride' when the hydrochloride radical is attached, is in strict accordance with our rules for nomenclature. Of course we would add 'Thiamine Chloride' as a synonym, at Dr. Nelson's suggestion."

The spelling "thiamine" was adopted for the second U.S. Pharmacopoeia XI Supplement and has since been accepted by *Chemical Abstracts*, *Journal of Biological Chemistry*, *Journal of the American Medical Association* (including the 1948 edition of "New and Non-Official Remedies"), and other publications.—*R. R. Williams* in *Science 109: 525 (May 20), 1949.*

New York State Nutrition Survey

II. A One-Day Study of Food Intake of Adults[1]

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IN A previous paper (1), the organization of the New York State Nutrition Survey, the method of analysis, and the results of the study of public school children have been described. This paper will report the results of a study of one-day dietary intakes obtained from records and interviews of 8125 adults—pregnant women, homemakers, and industrial workers.

SELECTION OF THE SAMPLE

Pregnant Women

Pregnant women were selected because they constitute a "stress" group. In New York City they were contacted through prenatal clinics of large hospitals. Upstate New York women had been referred to the public health nurse for consultation.

One-day dietary interviews were obtained from 1567 women—723 in New York City and 844 from upstate New York. The subjects were from low-income brackets. No arbitrary income level was used, but the subjects were selected from what was considered a low income for a particular community. The study did not include women receiving aid from welfare organizations. Sixteen of the eighteen health districts of the state were represented. The family incomes were grouped into four categories: under $25, $25 to $44, $45 to $64, and over $65 per week.

Homemakers

While a house-to-house canvass to find out what foods homemakers are feeding their families is a method of determining food practices, it might not be valid statistically since often members of the family may eat meals made from food not included in the home food supply. In this study it was decided to make a house-to-house canvass to find out only what the homemaker was eating. This would provide data of food practices of homemakers and to some extent the type of food which was served in the home.

Dietary data from approximately 5500 homemakers were collected. The number collected from each community was dependent upon the population of the area and the availability of interviewers. The study was limited to women living in low rental areas. Distribution of the sample was according to population concentration in upstate New York, and classified according to occupational status of the wage earner (2).

Industrial Workers

The study of food practices of industrial workers was conducted in two upstate cities. According to the information on population characteristics, approximately 7032 males and 10,484 females were employed in textile and garment industries in the two areas where the study was conducted. The sample of 268 males and 921 females represented 3.8 per cent of the male and 8.7 per cent of the female population working in those industries in the areas surveyed. The income of the subjects ranged from $40 to $50 per week.

METHODS OF COLLECTING INFORMATION

There were two methods of collecting information concerning the previous 24-hr. food intake: (a) to interview the subjects and (b) to have the subjects prepare a dietary record.

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In the study of pregnant women and homemakers, the information was obtained by interview. In New York City pregnant women were interviewed by nutritionists from the New York City Health Department, and in upstate New York, public health nurses did the interviewing. Interviewers of homemakers included public health nurses, graduate students from university departments of home economics, and state extension workers. Information desired in addition to the 24-hr. food intake varied with the type of study. Information concerning family income was asked of pregnant women. Homemakers were questioned as to age and family composition and occupation of the principal wage earner.

Directions for the interviewers were prepared in cooperation with the Bureau of Maternal and Child Health of the State Health Department and the State Extension Service. The data were to be quantitative as well as qualitative.

The study of pregnant women was tabulated according to area, that is, entire state, New York City, and upstate New York, and according to income level for each area. The data from the homemaker study were tabulated according to area and occupation of the principal wage earner.

Data on food intakes of men and women in industry were obtained by asking the workers to record all food and drink eaten during the previous 24 hr. The workers convened in a central hall, where a nutritionist or public health nurse from the State Department of Labor told them about the study and how to fill out the forms. This method of obtaining a food record took approximately 20 to 30 min. of the workers' time. The data have been tabulated according to sex and for each plant.

The method of analyzing the records has been described (1). In this paper the discussion will be limited to protein intake, milk and meat consumption, the use of fruits and vegetables high in ascorbic acid, and fruits and vegetables high in carotene.

RESULTS

Protein

The standards for protein in this study have been based upon the Recommended Dietary Allowances of the National Research Council (3), i.e. pregnant women, 85 gm.; homemakers and women in industry, 60 gm.; and men, 70 gm. The protein intake is reported in Table 1.

Pregnant Women. For the entire state, 22 per cent of the pregnant women interviewed took diets which included 85 gm. protein or more. Seventeen per cent reported diets which were under 45 gm. The mean protein intake for the state was 67 gm., and for upstate and New York City women, 72 and 61 gm. respectively. The upstate women used significantly greater amounts of protein than did those from New York City. In tabulating the data according to income level, it was found that an increase in income was not necessarily accompanied by an increased protein consumption. In upstate New York, while a low protein intake seemed associated with a low income, a higher income did not necessarily insure an adequate protein consumption. In Table 2 the consumption of food according to income level is shown.

Homemakers. Of the homemakers interviewed, 40 per cent took 60 or more gm. protein, approximately a fourth took less than 45 gm., and the mean intake was 57 gm.

Protein intake of women in New York City tended to be higher than for those from upstate New York,

TABLE 1

One-day study of protein intake of pregnant women, homemakers, and industrial workers

PROTEIN INTAKE	PERCENTAGE OF SUBJECTS							
	Pregnant women			Homemakers			Industrial workers	
	Entire state	New York City	Upstate New York	Entire state	New York City	Upstate New York	Men	Women
gm./day								
Under 25	3	3	2	3	3	3	—	2
25–34	5	8	3	7	7	7	1	7
35–44	9	13	6	16	14	17	2	10
45–54	13	15	11	23	21	25	5	22
55–64	17	18	16	21	22	21	7	21
65–74	18	16	20	14	15	13	11	17
75–84	14	11	16	8	9	8	11	10
85–94	11	9	13	4	5	3	16	4
95–104	6	4	6	2	2	2	14	2
Over 105	5	2	7	1	1	1	33	5
Mean protein intake (gm.)	67	61	72	57	58	55	96	59
Standard deviation	±22.2	±21.8	±21.6	±18.3	±18.9	±17.2	±30.7	±20.3
Total number of subjects	1567	723	844	5369	2599	2770	268	921

the differences being at the extreme ends of the distribution curve. A slightly smaller percentage of the New York City intakes were in the lower ranges and a higher percentage in the upper ranges. In upstate New York, communities of 25,000 or more had 33 per cent of the homemakers meeting the allowance.

Forty-six per cent of the women from communities of less than 25,000 reported using the recommended amount. Sixty-six per cent of the women from farms reported receiving 60 or more gm. protein, and 38 per cent of those homemakers from factory workers' homes reported getting that amount (Table 3).

Industrial Workers. From the diet records of men in industry it was found that 83 per cent took 70 or more gm. protein, and 3 per cent reported less than 45 gm. The mean protein intake was 96 gm. There was considerable variation between the plants. In one factory, 88 per cent reported meeting the National Research Council's recommended allowance, while in another plant 70 per cent took that amount. The sample in the third plant was too small for comparison.

From the dietary records of industrial women, it was found that 47 per cent had 60 or more gm. protein. The intake ranged from 39 per cent to 83 per cent according to the factory. Nineteen per cent of the subjects had intakes of less than 45 gm. The mean protein intake was 59 gm.

Milk (Including Milk Products)

To supply substantial amounts of protein, calcium, and riboflavin, it is usually recommended that the daily diet of the adult should contain approximately 2 cups of milk and that of the pregnant woman, 4 cups. The consumption of milk is shown in Table 4.

Pregnant Women. Approximately one-fifth of the pregnant women took 4 cups of milk the day of the study. Intake of less than $\frac{1}{2}$ cup was reported by 11 per cent of this group. Forty-six per cent took between a pint and 4 cups. Upstate women used significantly greater amounts of milk than did women from New York City. In Table 2 it can be seen that for the state there was no definite association between the amount of milk in the diet and income. However, when upstate New York was

TABLE 2

Relation between income and dietary intake of pregnant women

WEEKLY INCOME	NUMBER OF WOMEN	PERCENTAGE OF PREGNANT WOMEN CONSUMING VARIOUS LEVELS OF FOODS										
		Protein		Milk				1 serving or more daily of meat	Fruits and vegetables high in ascorbic acid			1 serving or more daily of fruits and vegetables high in carotene
		Under 45 gm. daily	85 gm. or more daily	None to less than ½ cup daily	½ cup to less than 2 cups daily	2 cups to less than 4 cups daily	4 cups or more daily		None	1 serving daily	2 servings or more daily	
Entire State												
Under $25	140	32	18	19	20	39	22	81	38	33	29	61
$25–44	833	15	21	10	23	49	18	87	42	27	21	66
$45–64	470	16	21	9	19	45	27	92	36	34	30	77
Over $65	52	12	24	6	15	56	23	92	27	31	42	70
Not stated	72	25	20	14	18	34	34	76	46	30	24	58
Total	1567	17	21	11	21	46	22	88	39	35	25	69
New York City												
Under $25	87	34	15	20	23	40	17	79	41	31	28	62
$25–44	423	22	13	15	23	48	14	94	46	36	18	66
$45–64	159	24	16	15	22	41	22	87	40	31	29	72
Over $65	12	8	50	20	40	20	20	83	30	40	30	70
Not stated	42	35	17	20	19	45	16	79	57	21	21	55
Total	723	25	14	16	23	45	16	86	44	33	23	66
Upstate New York												
Under $25	53	26	25	19	15	38	28	83	32	38	30	61
$25–44	410	7	29	6	22	48	24	88	38	39	23	67
$45–64	311	11	24	5	18	48	29	94	35	35	30	79
Over $65	40	12	20	3	10	64	23	95	28	31	41	70
Not stated	30	10	27	3	17	23	57	73	30	43	27	63
Total	844	11	26	6	19	47	27	90	35	37	27	71

TABLE 3

Relation of husband's occupation to use of protective foods by homemakers

LABOR CLASSIFICATION	NUMBER	PERCENTAGE OF HOMEMAKERS CONSUMING VARIOUS LEVELS OF FOODS						
		Protein intake of 65 gm. daily	Milk			1 serving or more daily of meat	1 serving or more of fruits and vegetables high in ascorbic acid	1 serving or more daily of fruits and vegetables high in carotene
			None to less than ½ cup daily	½ cup to less than 2 cups daily	2 cups or more daily			
Professional	405	43	17	33	50	93	72	81
Farmers	95	65	16	39	45	97	60	66
Proprietors	311	40	20	47	33	92	65	79
Clerical	1020	40	17	55	28	92	64	75
Craftsman	1036	38	23	42	35	92	51	66
Operatives	1240	39	16	49	35	92	48	66
Service workers	638	38	21	40	39	91	48	67
Laborers	248	47	27	40	33	89	40	72
Not stated	376	33	21	44	35	86	54	61

tested separately, there was a trend for milk to increase slightly with increased income. Apparently as income increased, the percentage of subjects excluding milk or using amounts totalling less than one cup decreased, but the percentage using 4 or more cups was not affected.

Homemakers. Of the homemakers interviewed, 37 per cent used a pint or more of milk, a fifth had milk in amounts ranging from no milk to less than ½ cup a day. The mean intake was 1.4 cups. There was no statistical difference between milk consumption by upstate or New York City homemakers. The milk intake of women, where the principal wage earner was of professional status, was found to be significantly higher than those of all other occupational groups. Fifty per cent took a pint or more of milk (Table 3).

Industrial Workers. Half of the men in industry had a pint or more of milk and about a third took less than ½ cup during the day of the dietary record. The mean intake was 1.6 cups. A pint or more of milk was reported by 30 per cent of the women in industry, 41 per cent took less than ½ cup. The mean intake for women in textile industries was 1.1 cups. Men took significantly more milk than did the women.

Meat (Including Fish and Poultry)

Although total protein was calculated, meat intakes alone are of interest as a source of protein, minerals, and vitamins. Meat consumption is shown in Table 4.

Pregnant Women. Meat was eaten at least once a day by 88 per cent of the pregnant women. There was no statistical difference in intake between upstate and New York City subjects. While increased income did not mean increased meat consumption in New York City, in upstate New York there seemed to be a relationship; when the income was under $25 per week, 81 per cent took meat and when the income was over $45, 92 per cent used this food (Table 2).

Homemakers and Industrial Workers. Meat was equally popular among women in homes and women in industry. Ninety per cent or more reported a serving. Farmers' wives and women in industry used the greatest amount, 97 and 94 per cent, respectively, having one or more servings, and 29 per cent of these women had two or more servings. Meat was included in the diets of 98 per cent of the male industrial workers, and 78 per cent had two or more servings during the day.

Fruits and Vegetables High in Ascorbic Acid

The intake of fruits and vegetables considered important sources of ascorbic acid are shown in Table 4.

Pregnant Women. Since the National Research Council recommends 100 mg. ascorbic acid or more for pregnant women, it would be extremely difficult to reach this allowance without using at least two or more servings of fruits or vegetables high in ascorbic acid, the standard for the study of pregnant women is two servings of these foods. Of the pregnant women interviewed, 25 per cent took two or more servings daily, 39 per cent reported eating none, and 35 per cent one serving. There was no apparent relationship between income and intake in New York City and upstate New York (Table 2).

Homemakers. Fruits and vegetables high in ascorbic acid were used by 55 per cent of the homemakers of both upstate New York and New York City. In upstate New York there were considerable variations in the different population areas; for example, 33 per cent of the women from populations between 50,000 and 100,000 took fruits and vegetables high in ascorbic acid while in populations of 10,000 to 25,000, 66 per cent used these foods. Wives of professional men used significantly more foods high in ascorbic acid than did homemakers from any other occupational group (Table 3); 72 per cent used these foods in contrast to 40 per cent of the wives of laborers.

TABLE 4

One-day study of protective food intake of pregnant women, homemakers, and industrial workers

AMOUNT	PERCENTAGE OF SUBJECTS*							
	Pregnant women			Homemakers			Industrial workers	
	Entire state	New York City	Upstate New York	Entire state	New York City	Upstate New York	Men	Women
Milk								
cups								
None to less than ½	11	16	6	21	21	21	34	41
½ to less than 2	21	23	19	41	41	42	17	28
2 to less than 3	26	27	25	22	20	24	32	24
3 to less than 4	20	18	23	10	11	9	9	4
4 or more	22	16	27	5	7	4	8	2
Meat, Including Fish and Poultry								
servings								
None	12	14	10	8	7	9	2	6
1	68	68	68	77	76	78	20	65
More than 1	20	18	22	16	17	13	78	29
Fruit and Vegetables								
High in ascorbic acid								
1 serving	36	34	37	55	55	55	38	39
2 servings or more	25	22	27	—	—	—	—	—
High in carotene								
1 serving	69	66	71	70	73	67	49	55

* For number of subjects, see Table 1.

Industrial Workers. There was no apparent variation by either plant or sex in intake of good sources of ascorbic acid by factory workers; 38 per cent of the men and 39 per cent of the women took some in their diet.

Fruits and Vegetables High in Carotene

Pregnant Women and Homemakers. Fruits and vegetables that were considered important sources of carotene were used by approximately 70 per cent of the pregnant women and homemakers (Table 4). In the study of pregnant women the differences in intake of New York City and upstate women were not significant. However, in the study of homemakers, New York City women took more of these foods. Income was not associated with intake of fruits and vegetables high in carotene (Table 2) in New York City pregnant women. In upstate New York, however, servings of these fruits and vegetables increased with income. Homemakers from New York City used more of these foods than did those from upstate. Approximately 60 per cent of the women from populations of 100,000 or over and those from communities of less than 2500 used one or more servings of the foods, while other areas reported three-fourths including this amount. The highest intake was from homemakers of professional workers, 81 per cent took fruits or vegetables high in carotene (Table 3).

Approximately half of the men and women from the industrial plants took some fruits and vegetables high in carotene. This did not vary significantly by plant or sex.

DISCUSSION

In studying intakes of pregnant women, the sample selected for this study was from low-income groups or low-cost rental areas. The income status of subjects from New York City was lower than those of upstate New York; 70 per cent had incomes of less than $45 per week, while in upstate New York, only 50 per cent fell in that group. This difference in income may partially explain the better selection of food by upstate pregnant women. There was no attempt to obtain information pertaining to family composition and income, since there would occur so many combinations that in the breakdown of the data, the numbers would be too small for effective comparison.

While the homemakers interviewed were from low rental areas, it might well be that, due to the housing shortage, the population was not necessarily from the lower income brackets. The sample may not actually represent food practices of subjects from the lower income levels.

The questions of the reliability of the data might be discussed. The dietary information derived from both homemakers and pregnant women was obtained from interviews. The completeness and accuracy of the record of intake depends upon the memory of the

TABLE 5

Summary showing percentage of subjects whose food intake met Recommended Dietary Allowances

GROUP	PERCENTAGE OF SUBJECTS* MEETING ALLOWANCES						
	Protein	Milk	1 serving or more of meat	2 servings of fruits and vegetables high in ascorbic acid	1 serving of fruits and vegetables high in ascorbic acid	1 serving or more of fruits and vegetables high in carotene	Composite recommended diet
Pregnant Women							
Entire state	21	22	88	25		69	4
New York City	14	16	86	22		66	3
Upstate New York	26	27	90	27		71	5
Homemakers							
Entire state	40	37	93		55	70	12
New York City	43	38	93		55	73	14
Upstate New York	37	37	91		55	67	11
Industrial Workers							
Men	83	49	98		38	49	16
Women	47	30	91		39	55	7

* For number of subjects, see Table 1.

subject and the ability of the interviewer to draw forth information. Dietary information from industrial workers was obtained by having the worker record his food intake. In either method the magnitude of error may have been considerable. If it may be assumed that the error of omission and commission is of the same degree, whether it be due to errors in interviewing techniques or errors on the part of the subject, then these will tend to compensate each other. The means, it is believed, are essentially correct and may be important in showing changes of food practices that may occur. However, in interpreting a study of food practices, it is erroneous to judge the adequacy or inadequacy of the diets of populations only by mean intakes of certain nutrients. Since it is obvious that distribution of food is never equal, it is more satisfactory to interpret also the findings in terms of the distribution of the food or nutrients according to the sample. In judging dietary intakes, the pertinent information occurs in the percentage of the sample that received less than the recommended allowances, which must be regarded to represent that part of the sample who actually have intakes of food below the recommended amount and also those whose dietary intakes have been inaccurately recorded.

The difficulties of interpreting dietary intakes by servings of food and by the consumption of certain food groups, rather than by actual weights of foods were discussed in the report of school children (1). However, this method may be justified further by a consideration of the distribution of nutrients in different foods. Although nutrients may occur in a variety of foods, they are present in appreciable amounts in only a few. For example, to approximate the recommended amounts of calcium and riboflavin in the diet, it is generally necessary to include a pint of milk for the adult or a quart of milk for the pregnant woman unless very large quantities of meat and exceptionally large amounts of greens are used. Ascorbic acid can be found in appreciable amounts in few foods other than citrus fruits, tomato, cabbage, strawberries, or cantaloupe. While the allowances of vitamin A might be met by eating large amounts of dairy products, a serving of a green or yellow vegetable practically insures an adequate intake of carotene. Meat is important in the diet not only because of its protein content, but it contributes appreciable niacin. Thiamine is found in small quantities in a variety of food items. In New York, because of the enrichment of white flour used in the preparation of bread and rolls, added protection against deficiencies of riboflavin, niacin, thiamine, and iron are given to the population.

Diets were not grouped as to relative value, that is good, fair, or poor. Classifying dietaries into categories by giving a credit to each component and then grading them accordingly may be criticized since in a situation where each nutrient is considered essential, there is no way of weighting them relatively. The data were tabulated according to number of subjects taking the recommended amounts of protein, milk, one or more servings of a food high in carotene, one or more servings of a food high in ascorbic acid, and in the case of pregnant women, two or more servings. In the summary, Table 5, the results of the tabulation are shown, and it is seen that a relatively small percentage of all groups

studied included each protective food in the diet each day.

The percentage of women meeting the protein standard was under 50 per cent for all three groups. A fifth of the pregnant women took the recommended intake of 85 gm., while 40 per cent of the homemakers and 47 per cent of the women in industry took 60 or more gm. protein. The mean intake for pregnant women was 67 gm. with a standard deviation of ±22 and that of other women was approximately 58 gm. with a standard deviation of ±20. There were 17 per cent of the pregnant women, 26 per cent of the homemakers, and 19 per cent of the women in industry who took under 45 gm. of protein. Eighty-three per cent of the men took 70 or more gm. protein with a mean intake of 96 gm.

In comparing this with other data, Burke (4) obtained data in a sample of 216 women by detailed dietary histories and reported 10 per cent received 85 or more gm. protein, while 38 per cent received less than 55 gm. In this study 21 per cent took 85 or more gm. protein and 30 per cent less than 55. Bethell and Blecha (5), reporting on dietary intakes of 484 pregnant women, had 17 per cent using over 80 gm. protein and 8 per cent under 45 gm.

In comparing the protein intake of pregnant women and non-pregnant women in this study, the pregnant women were taking more protein than the homemakers or female industrial workers, which may or may not have reflected a change in food practices brought about by prenatal consultation. Nevertheless, the pregnant women had the smallest percentage receiving recommended protein allowances.

Pregnant women reported 22 per cent taking a quart or more of milk. From the data it might be assumed that three-fourths of the sample were not receiving the recommended amount of calcium or riboflavin; and since 25 per cent took two or more servings of ascorbic acid, approximately the same percentage was failing to get amounts of ascorbic acid which most nutritionists would recommend. Carotene intake was comparatively high, 69 per cent receiving a daily serving.

Surveys of adults show varying amounts of protein intake. Youmans (6), studying a rural white population in Tennessee by calculating weekly food intakes, reported in 1943 a mean protein intake for 228 men of 82 gm. and for 229 women, 53 gm. Milam (7) obtained means of 82 gm. for men and 59 gm. for women in a study of 338 adults. Greenwood (8), studying weekly dietary records collected five times during the year from 203 college women, found a mean of 64 gm. In that paper twelve other studies of college women were reported. Eight of the studies reported means ranging from 55 to 65 gm., three between 70 and 75 gm., and one of 91 gm. Winters (9) in 1943 analyzed chemically, diets consumed by twenty-four Texas women from low-income families and found the mean protein intake to be 34 gm.

Approximately a third of the women in the present study took 2 or more cups of milk daily, and a fifth of the homemakers and two-fifths of the women in industry recorded intakes of milk which were less than ½ cup. From this record of milk intake, it is evident that about two-thirds of the women received less than the recommended amounts of calcium and riboflavin. About half took a serving of a fruit or vegetable high in ascorbic acid and a half to three-fourths used a food high in carotene. Meat was an important component of the diet regardless of area or income. These findings are in approximate agreement with data of food consumption found in other surveys and reviewed in the bulletin of the National Research Council, "Inadequate Diets and Nutritional Deficiencies in the United States" (10).

Wiehl (11), in a study based upon weekly intakes of 1103 men working in an industry in California, reported satisfactory weekly amounts of milk in 51 per cent, meat in 95 per cent, citrus fruit or tomato in 36 per cent, and green or yellow vegetables in 21 per cent of the cases. In our study of 268 male workers, the intake differed primarily from the California study by a higher intake of fruits and vegetables high in carotene.

From this and other surveys and studies, it could be concluded that a large percentage of the population is not eating diets that meet the Recommended Dietary Allowances of the National Research Council. We do not believe that these data necessarily means that a large percentage of the population is undernourished, inasmuch as the allowances are intended to serve as a guide to include the needs of all types of individuals and are undoubtedly higher than the actual needs for some people. It must also be remembered that the percentage in this low category includes the errors of omission which may amplify the dietary insufficiencies recorded.

Since the findings of this study compare reasonably well with those of other studies done by various methods, we believe the data present material which shows trends in the food practices of the low-income groups, and that the study can serve as a base line for further research and investigation of nutritional status and factors which might affect the nutritional status of the population. Furthermore, the methods used in conducting the study were within the reach of most state health departments. It would, therefore, seem that a cooperative effort in which many agencies and all sections of the state were included should stimulate interest in the important public health problem of the nutritional status of the state.

SUMMARY

One-day dietary records and interviews of 1567 pregnant women, 5369 homemakers, and 1189 in-

dustrial workers receiving low incomes or living in low rental areas in the state of New York have been analyzed for the amounts of protein, milk, meat, and number of servings of fruits and vegetables high in ascorbic acid and high in carotene.

Protein intake equal to the National Research Council's recommendations was reported by only 20 per cent of the pregnant women, 40 per cent of the homemakers, 47 per cent of the women in industry, and 83 per cent of the industrial men.

Milk intake was satisfactory for only about 20 per cent of the pregnant women, 33 per cent of the homemakers and women in industry, and 50 per cent of the men in industry.

Over 88 per cent of the persons in all the studies included meat, fish, or fowl in the diet.

Fruits and vegetables high in ascorbic acid were eaten in recommended amounts by 25 per cent of the pregnant women, approximately 40 per cent of the industrial workers, and 50 per cent of the homemakers.

Fruits and vegetables high in carotene were included in the diets of about half of the industrial workers and 70 per cent of the pregnant women and homemakers.

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Taste Factors to Consider in Using Glutamate

Most foods are eaten with appreciable amounts of salt being present. If we examine a solution containing 1.0 per cent salt and 0.5 per cent glutamate, we will find that the taste is mildly sweet and pleasantly salty, but there is an additional effect of an apparent high flavor intensity, somewhat difficult to describe inasmuch as it is not identical to the high intensity of too sweet sugar solutions or too salty salt solutions. Rather, it seems that all the taste buds are stimulated pleasantly and the stimulation persists for a long time. The closest similar taste is that of a salted chicken broth, although the broth is lacking in this high intensity factor.

With salt levels at 1.0 per cent, the lower concentrations of glutamate have a normal glutamate taste, and the saltiness of the solution is materially diminished. However, when 1.0 per cent glutamate is used, no reduction in saltiness is noted, although the glutamate taste is a normal one. These observations indicated:

(a) That salt must be present to produce a useful glutamate taste.

(b) That for optimum efficiency and palatability, the concentration of the salt is dependent upon the concentration of the glutamate.

Since the *p*H of foods varies rather widely, observations were made to learn the effect of *p*H on the normal glutamate taste. The solutions at *p*H 8 and 6 had essentially the same taste as the control (*p*H 7). As the acidity was increased, the normal glutamate taste was noticeably and progressively reduced.

These observations indicate that glutamate is more economically used at more neutral *p*H's. In all cases, the aftertaste was the same as from neutral solution. Apparently, the gradual return of the saliva to a neutral condition restored the original taste characteristics.

These experimental results would indicate that in applying monosodium glutamate to foodstuffs, particular attention must be paid to the salt content, the *p*H of the food, and the sweetness. All may require adjusting for achieving the maximum benefits of the glutamate.—*Stephen L. Galvin in* Monosodium Glutamate—A Symposium. *Chicago: Quartermaster Food and Container Institute. 1948, pp. 40–41.*

Cultural Patterning of Nutritionally Relevant Behavior[1]

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JUST after Pearl Harbor, I went to Washington to work for the Committee on Food Habits of the National Research Council, and I had to learn something about food. One of the first things I set out to learn was something about the priestesses of food—what dietitians and nutritionists are like, where they come from, what their ideas are. When one goes into any new society, one always studies the elite, because in the end, they are the people who make the changes. In our society, of course, you have an elite that goes with each kind of change—the people who are trying to get us to bed earlier, the people who are trying to get us up earlier, those who are trying to make the sheets cleaner, the air purer, and towns better planned and the playgrounds bigger. Dietitians are in the unique position of being the best established priestesses, in a sense, because they have the most concrete science behind them.

When you consider the kind of science that lies behind clothing, for instance, you have only what is cheaper to buy, what is the width from which you can cut a dress most easily, what is the new look, and a little bit about dyes, fabrics, and durability. There is no science of the same order as nutrition. It is necessary for people working on clothing or housing, for instance, to work almost entirely with social, psychologic, and economic features. Now, I know that we can overemphasize the stability of your basis, because it does change. For instance, the nutritional rating of spinach goes up and down. (I'm so out of date, it's probably gone up again since I last heard about it.) You, therefore, have the slightly difficult task of communicating to people that you represent a science of enormous weight and strength, but that some of the basic rules may change next week. That's difficult, but at the same time, you do have a great body of physiologic experiments behind you. So, in a way, you're in the vanguard of all groups of people who are trying to adapt our living habits to our modern scientific knowledge. One might almost say, as nutrition and dietetics go, so go housing, nursing, sanitation, public health—the other fields that don't have biochemistry and physiology back of them quite as firmly.

I shall discuss here in general terms the way an anthropologist looks at this problem today, and what, as I see it, is the job of a group such as yours inside our present culture.

CULTURAL EATING PATTERNS ARE ALL ARTIFICIAL

When an anthropologist looks over the world, one of the striking things is that, although food is supposed to have something to do with physiology, very few societies have trusted any relationship whatsoever between the individual's natural rhythm, the individual's natural desire to eat, and the diet that he was expected to eat. Whether we go into the center of New Guinea, the center of Africa, a peasant community in Europe, or a modern, scientifically planned institution, we find that people are asked to learn to eat a set of foods, many of which they initially do not like, in combinations for which there is no known reason. They are asked to eat them often enough so that they will come to think of them as say "breakfast."

Most societies—the poorer the diet, the more this is true—insist on human beings learning, "this is breakfast," "this is lunch," "this is dinner," "this is the *company* dinner," "this is a snack," "this is what you can (or cannot) eat when you're engaged. If you eat any more than this when you're engaged, then something's wrong, and the whole situation becomes slightly tainted." These classifications are taught to children, so that when they grow up, they continue to insist, "this is a meal for this occasion."

All of you who worked during the war will remember striking instances of this. In this country, people don't eat "protein"; they eat a "main dish"—a main dish that is either oval or round, preferably oval and placed in front of father. You introduced Spanish rice, macaroni, and all sorts of appalling substitutes for protein without any difficulty because people eat *main dishes* at dinner. But, when you tried to introduce milk and convince people that milk was a substitute for meat, you know what hap-

[1] Presented at the 31st Annual Meeting of the American Dietetic Association in Boston, on October 22, 1948.

pened. People in the United States know that milk isn't meat. They know it is an alternative for tea or coffee. If you experiment with trying to get a waitress to bring you *both* coffee and milk, or *both* tea and milk, you'll soon realize that this is true.

Traditionally, in all known societies including our own, we have eliminated any natural desire to eat, substituted for it cultural patterns, and enforced these cultural patterns with very heavy sanctions—every conceivable sort of sanction. "You eat this because you're a human being; if you eat that, you would be an animal," is one of the strongest. "Those foods are foods the next tribe eats," or "only pigs eat that," or "that is what wild things eat," or "it's fit for sharks" . . . "but you, as a human being, eat this." Then it can be more elaborated. "You, as a member of your cast," "you, as a member of one race instead of another," "you, as an aristocrat instead of a peasant," "you, as the wife of a successful taxi driver, eat steak." Thus, you aren't eating steak any more —you're being the wife of a successful taxi driver, which is very important, of course. During the war, I watched a taxi driver order 3 lb. of steak from a butcher who said, "It's a dollar a pound, you know," and the taxi driver said, "What do you think I drive a taxi for?"

This dependence in the past on a culturally imposed eating pattern has kept people alive. We must suppose that in any culture which had too bad a pattern, the people perished. Undoubtedly many little tribal groups disappeared because they didn't have a good pattern, or because one change was introduced into the pattern with which they didn't know how to cope. For instance, the one source of their calcium or the one source where they obtained ascorbic acid may have become unfashionable or derogated in some way. Then the whole diet would have gone to pieces and in a battle with the next tribe they would have gone down and that was the end of that tribe. Thus, all the people we find today have a nutritionally viable pattern which they have somehow bullied, cajoled, threatened, and persuaded their children to eat. But each such pattern has been based on an empirical nutritional science; if it doesn't include at least the absolutely essential nutrients, the people would not have survived. No one knew what they were doing, no one knew why they ate the things they ate, but gradually over a period of time viable patterns have been established.

IMPORTANCE OF MEALS IN THE DEVELOPMENT OF CIVILIZATION

These patterns were important for another reason, which I think is valuable for dietitians to understand. In our pre-human history, if we can judge by what the primates do today, people didn't have much time for anything except sleeping and eating. They ate all the time they were awake, and when they stopped eating, they went to sleep. Then they woke up and ate again. One of the great advances of human history was the invention of meals, so that children could learn that you are hungry two or three or four times a day and the rest of the time you can do something else—use you brains, for instance. We can almost say, if we are talking in nutritional terms, that civilization began with three inventions: persuading males to feed women and children; dividing up the labor of preparing food so that one person could cook for several, instead of each person picking his own grapes all day long; and inventing meals, so that you persuaded a baby who was perfectly willing to eat almost continuously to eat only sometimes.

We don't want to give up any of these three great inventions, although sometimes we seem rather near it, with three-quarters of a million mother-and-children families in this country today where father isn't providing, because he isn't there. Nevertheless, we don't want to give up the position where men provide food for women and children, especially children; we don't want to give up the position where one person prepares food for a family or a larger unit, because that's the economic thing to do; and we don't want to give up the disciplining of natural impulses into a pattern which makes it possible for people to learn their multiplication tables and do other things between meals. Those are all important, and we want to keep them.

THE TASK OF RAISING FOOD HABITS TO A HIGHER LEVEL

Is it now possible to take another step, since we do not need to depend on custom any more and our ascorbic acid isn't concealed in some food we must eat every Wednesday, or which a man always must give to his mother's brother's son whenever he meets him, or something of that sort. Now that we know what ascorbic acid is and that it is in many places, we know that we can substitute tomato juice plus a little lemon juice for orange juice, for instance. Now that we have nutritional science, we can go a step further. We don't need to rely on habit and custom quite as much, and we can raise our habits to a higher level. That was done, of course, to a certain extent with the Basic Seven during the war. The attempt to get the meal planner to work in big groups of foods, to make patterns that weren't so fixed as they had been before, to give the idea that there are *groups* of foods out of which certain nutrients come, was an effort to give the cook, the woman who did the cooking or the planning, some idea of planning on a higher level.

However, a great deal of our nutritional and dietetic education has still been of the order that if you are an aristocrat you eat white bread. As dietitians, you may not think so, because you have tried to teach people that they should have so many grams of this or they ought to eat this particular food.

There has been in the past a great deal of over-detailed, concrete teaching. It was a little bit like the savage teaching his child, "you eat this, and the next tribe eats that, and the dogs and pigs eat something else," which made them very rigid in sticking to their own diets, without which, of course, they would have perished. But, they were not very flexible in taking on anything new.

One of the striking examples, I think, of the bad results of sound nutritional teaching in discrete bits was seen during the war. Do you remember the sweet, synthetic orange juice which was sold in milk bottles in some of the war plant areas? Its consumption and acceptance was the result of a beautiful job of teaching. Mothers had been taught about milk bottles—that they are wonderful, that they protect their children and give milk. . .get your milk in a milk bottle! They had learned that if milk is in a milk bottle and has a piece of cardboard on the top and comes from a dairy (we all know about dairies and how wonderful they are), then the milk is pure and white and noble and germ-free, and children are guaranteed not to get any disease. On the other hand, the mothers also knew about fruit, and especially about oranges. They knew that their children would never get their vitamin C properly if they didn't eat oranges. The poor mother who had learned these two points, when confronted by orange juice in a milk bottle, bought it, and in many cases fed it to her baby instead of milk. Now, the two things they had learned were both true, but they were little discrete bits that didn't give the mothers enough flexibility or enough understanding to reject this new exploitation for themselves. (At least, I don't think that we now believe sugared synthetic orange juice is good for babies!)

THREE LEVELS OF KNOWLEDGE

Now this all means, in effect, that you must work with several levels at once. You must work with the people who still need a pattern, and a pretty rigid pattern, with which to operate—those who need to be given suggestions for menus, such as the people planning school lunches who have no nutritional background and who need to be given many, many menus so that they can feed the children the right food from the available supplies. You need to inform our radio food commentators so that they will be able to mention the foods that are in long supply and so use nutritional knowledge in passing out menus.

In the second place, you must grow a generation of housewives, principally through high school teaching, who are able to think in larger terms, who don't need a menu, but in a sense can plan their own because they have been given enough flexibility so that they can move freely among food groups.

Third, you must start growing a generation of babies to whom food means food and not prestige, membership in a sorority, beauty, or the Harvard training table and "let's all drink milk because they do."

That's quite a tall order to fill all at once, for you must work at one level with the adults, on a second level with the adolescents, and on a third level with the babies. We need to take the nutritional science we have and adjust it in terms of the social science we have. Adults are capable of one sort of adjustment. They have already grown up; mother taught them about eating and not eating and what they ought to like and that the things that are good aren't "good for you." This can't be undone. Then we have the adolescents who have already been babies, and you can't undo that either. We must start with them as they are, but they are very much more literate, very much more sophisticated about nutrition than their elders, and they can learn a great many more generalizations than the adults.

Finally, there are the babies. This involves a relationship between yourselves and the pediatricians and nurses which is only slightly developed as yet and which needs developing badly. It means tieing in the experiments made in nutrition—like Dr. Curt P. Richter's experiment where he found that rats can select a better diet than man can plan for them. Here the rat seems really superior to the man. Now, any place where this may be true is a place to stop and think, because we know that, on the whole, we're superior to rats. If there is something in the rat which we can evoke so that he will do a better job of picking his diet than the best, most beautifully trained doctor of philosophy in nutrition can, that's the point where we want to stop and think.

RATIONALE OF SELF-DEMAND FEEDING

Our new plan for feeding infants in this country, called self-demand feeding, is an attempt to let the newborn infant set its own rhythm in regard to food. It is not, as so many people think, an attempt to go back to the primitive savage. I've seen primitive peoples, where the mother nurses her baby whenever it is hungry *and* she is around. She hasn't any sense of timing. Because she never knows when the baby is going to be hungry, he is hungry quite a bit of the time, even though the mother is completely permissive when she is there. Self-demand invokes faith that the baby when it is born has a capacity to set its own rhythm. Then add the clock at its highest level of precision. What self-demand feeding really means is that you look at the baby and then at the clock and make a plan, instead of looking at the clock and then at the baby, which is our present system.

Society has had an artificial form of feeding that has been viable. Our present system of feeding babies keeps many of them alive, but many other things happen to them that are unnecessary. If, instead,

we begin by taking each new baby when it is born, watching it, feeding it when it's hungry, and writing down the time when it is fed, it is possible to develop a schedule in which there is time to go to the market and do all the many things a modern woman has to do and still be there when the baby is hungry. He will develop his individual rhythm—judging from all the evidence that we have now—and he will know something about the relationship between himself and food. He will not need to eat because this is the right meal to eat at the right time . . . or because if you don't eat this way, you aren't a member of the upper middle class . . . or because you prove that your grandfather left eastern Europe for a good cause by the amount of beautiful white bread that you eat now . . . or whatever the different motivations may have been that made people move and build houses —even go to Hollywood—in the past. Instead, people will begin to eat food for its own sake and in tune with the needs of their bodies.

We will always need the dietitian to provide people with plans, with choices, and with arrangements that are practical, within which they can make flexible choices. We ought to be able, in the future, to develop a changing pattern that will be fitted to our increasing nutritional knowledge and to the presence or absence of particular foods. At the same time we should be able to develop individuals who have flexibility and variability enough to eat anywhere at any time if it's necessary, in any part of the world, any food which may be dictated by the exigencies of war or peace or migration or shortage or change. When that is done, we'll have a degree of nutritional strength that the human race probably hasn't had since it spent most of its waking time looking for grapes.

Nutrition and Dental Caries

A relation between dental caries activity and long-term nutrition, has been suggested by Dr. Genevieve Stearns, University of Iowa, College of Medicine, who points out that during stress periods, decreased absorption of calcium, phosphorus, vitamins A, D, E, and K might be expected. These stress periods are: infancy and early childhood, adolescence, lactation, and the menopause.

The addition of vitamin D to infants' diets is common, but it is usually discontinued after the age of two years. However, work at the University of Iowa has indicated that supplemental vitamin D, at levels of 300 or 400 I.U. daily, may also aid in calcium absorption during early childhood.

The second period of stress is adolescence. Todd has noted the progressively poorer mineral content of bones during adolescence and called this condition "the physiological osteoporosis of adolescence." At Iowa, a study was made to learn whether this condition was truly physiologic or the result of undernutrition. Four groups of adolescents were studied. Two—one of boys, the other of girls—lived in one orphanage. They were given graded amounts of milk and vitamin D, but even with a daily intake of 2 qt. milk and 800 I.U. vitamin D, calcium retention was well below the need.

The third group from another orphanage received similar treatment, and calcium retention was considered good when 1 qt. milk was drunk daily and 400 I.U. vitamin D taken. The only difference was that the second orphanage had, over a period of time, a larger food budget and the nutrition of the girls was excellent. It appeared, then, that the longer a child receives a diet that is not fully adequate, the poorer the absorption of minerals, fat-soluble vitamins, and fat. To check this theory, a fourth group of girls was studied over a six-month period, with retention tests made each month after the increased milk and vitamin D intake began. Each month the retention increased, until by the sixth month, all of the girls under fifteen years were retaining ample amounts of calcium and phosphorus.

In regard to the third period of stress, Dr. Stearns suggested that difficulty in maintaining the calcium-phosphorus balance occurs during lactation rather than pregnancy, and pointed out that there have been no studies along this line. At the menopause, too many women have lost their teeth to make a correlation between the caries rate and nutritional status possible.

The value of reducing carbohydrate intake in reduction of caries was also questioned, on the basis of the conditions of studies reported. Several cases are reported of children treated at the University of Iowa who received strictly controlled diets which included a high percentage of sugar, yet whose dental caries activity was arrested. These cases served to stress Dr. Stearns' point that the state of nutrition, rather than high or low sugar content, were influential in dental caries.—*Abstracted from "The Effectiveness of an Adequate Diet in the Control of Dental Caries" by Genevieve Stearns in Journal of Dental Research 27: 397 (June), 1948.*

Nutritionists and Social Workers Cooperate on Mutual Problems[1]

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THE NUTRITIONIST and the social worker share mutual problems in a face-to-face situation with a patient or client who, because of illness or other difficulties, finds himself in a state of uncomfortable disequilibrium where his habitual patterns of living no longer meet the situation adequately. Because you and I, nutritionist and social worker, come together in the situations where the patient is confronted with the need to change his habitual patterns about eating, I should like to talk particularly about the difficulties for us and for the patient in those situations. The principles involved in handling them, however, are much the same as if the patient should find it necessary to have help in effecting some other shift in his way of life, particularly if it meant a disturbance of his emotional gratifications.

Eating is more than an activity undertaken to satisfy nutritional needs. If that were not so, then your work and mine would be a very simple matter indeed. You would just have to teach the patient what foods he requires or even give him a simple list, and I would only be concerned with seeing the group of patients who needed financial assistance in order to buy what you suggested.

Social workers, who began historically with the idea of "doing good," were some years ago distressed to find that, although many people who were offered better opportunities could use them constructively, there was also a large group who could not utilize very effectively either better material advantages or, for example, good medical care to which the social worker referred them. There was a time when, in such a predicament, the social worker found herself writing "Case closed. Client uncooperative." I know from working with nutritionists and from some of the articles that have appeared in your journals that you, too, have sometimes found yourselves in a similar predicament. However, with the progress of psychological understanding, particularly within the field of psychiatry, which has generously contributed from its knowledge to those of us who work with human beings in trouble, there has been a change. It is the adaptation of this knowledge to our joint use that I would like to discuss with you. You will understand, I am sure, that in selecting this area of discussion I am not undervaluing the knowledge from other fields which contributes to the solution of such problems.

In a discussion of the emotional factors in nutrition it is necessary perhaps to agree first on more than the fact that they seem sometimes to introduce an irrational factor which often upsets our plans. We all know that many of the feeding problems of children are an expression of a disturbed relationship with their mothers. We know, too, that food to the child is not simply nourishment but an expression of the mother's love and protective feelings for him. It is obvious to all who have observed children during their first year how far their total emotional response to the world is organized around their mouths and their eating activities. But we are more inclined to forget that the instinctual energies which take on their first pattern of response in the feeding situation are the same energies which motivate our adult life. In the course of a child's development the function of eating may not only retain the emotional overtones of his earliest human relationship, but may also take on other meanings according to circumstances he encounters not only in the outside world but also in the vivid inner world of his own imagination. As he tries to understand experiences as yet beyond his powers of comprehension, he may make mistakes which, although forgotten and intellectually corrected, in later life may give him certain unaccountable feelings about eating. A little girl may, for instance, decide that since the baby seems to come out of her mother's stomach the seed must have gone in through her mouth. This idea long after it is completely forgotten may have a profound influence on her ability to eat. I speak of this not because I feel it is in your field or mine to deal with such difficulties, but only to remind you of the complexity of the emotions which may surround eating.

[1] Presented at the 31st Annual Meeting of the American Dietetic Association in Boston, on October 22, 1948.

RESPECT THE PATIENT'S DIFFICULTIES IN CHANGING FOOD HABITS

This brings us, I think, to the first practical point which I wanted to emphasize. We must have some respect for the difficulty of the task which is set for the patient when any radical alteration of his eating habits is required. Dr. Margaret Mead has pointed out that we cannot expect to change the eating habits of a group of people without some shifting in the whole culture pattern. It seems to me that we cannot expect to change greatly the eating habits of an individual, particularly with regard to amount of food intake, without some shifting of his pattern of emotional gratification. This is apt to be hardest when, during his development, eating has been endowed with an unusual amount of symbolic meaning.

When we are trying to help the patient to bring about such a change, it is of great practical importance that he should feel that our emotional investment is in him and not in our success in effecting the change. He should feel that, while we are interested in his achieving a change which will benefit his physical health, he as a person will still be acceptable to us if the organization of his psychic economy is such that he is unable to change. This may sound to you like a defeatist attitude, but it will in fact, in most instances, make it more possible for the patient to change.

Respect for the difficulty involved in change will not only affect our attitude toward the patient but will also lead to the use of more appropriate techniques, all of which we obviously cannot go into now. I should like, however, to mention particularly the importance of a good history of the patient's problems. This will most frequently mean that we will want to give the patient a chance to tell in his own way the story of his complaint and what his feelings and ideas are about any changes in his food intake. Even when the medical history already contains a long account of the patient's objective symptoms, his own account will often give you a better idea of what the real problem is in terms of its meaning to the patient. It is important *not* to have a specific set of questions which will fit the patient's story into a pattern of our making; this will not give us an idea of how the problem seems to him. Even a good history will not give us directly the forgotten and now unconscious factors that enter into his difficulties about eating, but it will give us the resulting adaptations in the patient's behavior around food. With experience we all learn to understand not necessarily the specific difficulties behind his behavior but the extent of their involvement in the problem. In some instances it will be clear that little can be achieved by the nutritionist without psychiatric help. In most instances, however, such an account of the patient's feelings about eating will give the nutritionist some guide as to what her role may be in helping him.

NEED FOR GOOD RAPPORT WITH PATIENTS

This brings us to the point which is, outside of the nutritionist's technical understanding of food, probably the most important. That is the fact that the patient's relationship with the person who is trying to help him has a great deal to do with his ability to utilize the help that is offered. In such a relationship acceptance of the patient as a whole person, or we might say intelligent good will, is a good beginning but is not enough in many instances. When it is more difficult for the patient to change, we need to have a little more detailed knowledge of the kind of person he is and what the particular situation in which he finds himself may mean to him.

HISTORY OF ONE PATIENT

In order to give you a better idea of what I mean, I would like to tell you about a thirteen-year-old Italian girl whom we saw on the wards of our hospital.

I shall tell you in the beginning that the patient died, but I think that need not prevent us from learning something from what happened to her during her illness. Her illness had been difficult to diagnose, but it was finally established that she was suffering from tuberculosis. She had two acute episodes of fever while she was in the hospital, one associated with a rash and one with a urinary tract infection. She lost weight steadily and was a severe nursing problem, largely because she would not eat. The doctors, the nurses, and the nutritionist on the ward were gravely concerned about this. The nutritionist prepared Italian foods, but she actively resisted eating anything. Everybody put as much pressure as possible on her to eat.

As she became more acutely ill she would moan for her mother. Her mother was not in this country because, although the patient had been born here, when she was about three months old the family had returned to Italy. The family stayed there so long that her father, who had been a naturalized citizen, lost his citizenship rights. During the war the father had died, and the mother had finally succeeded in sending the patient and her older brother and sister, all of whom spoke very little English, to relatives in this country. The children were in the charge of the older sister, who was twenty-four and who had taught school in Italy. It was impossible for the mother to return to this country with the youngest child because of the immigration quota. Rosa, the older sister, visited the patient daily but seemed to feel completely helpless, although she, with the encouragement of the doctors and nurses, tried to force her sister to eat.

The doctors finally decided to try to feed the patient intravenously, and she reacted with a hysterical loss of function in the arm where the needle was inserted. At this point the doctors referred the patient to the psychiatrist. By this time she was very

ill indeed and hardly able to respond to the psychiatrist's conversation. He recommended that the pressure which had been put on her to eat should be given up and that, if possible, one nurse with whom she had a good relationship should feed her. He also suggested that her sister might be allowed to bring in food from home. Since it was not possible for him to communicate very much with her, he asked me to see her sister with the idea of understanding the situation better and seeing how the sister might help.

When I saw Rosa I found that she was deeply disturbed about the patient's predicament. She told me that the patient had always been a rather stubborn, withdrawn youngster who would never do anything under pressure. Rosa felt that their mother had been rather easy-going with her, but she had felt the need since they came to this country to be more strict with the patient. She felt that the patient was jealous of the nine-year-old brother whom she had left behind in Italy with the mother, but the jealousy was never openly expressed. On the ship as they were coming over, the patient had nightmares in which she called for her mother, but in the daytime never expressed very much feeling about it. When she arrived in this country she overate at first.

I found that Rosa herself was very unhappy. She had had great expectations concerning her life in this country, but none of them had been realized. She had taught school in Italy, but here she found that her brother had to do menial work and that she herself had been unable to get any work similar to that which she had done in Italy. The relatives with whom they were staying seemed to her not very sympathetic, and she, like the patient, would have preferred to be back in Italy. She had no friends here, and she was very homesick. She had not told her mother about her sister's illness because the mother herself was in great difficulties and lacking in food and money.

As I went on to discuss her relationship with the patient, she told me that she believed in being hard on children. All of her expectations had been disappointed, and she thought it would be well for children to find out the way the world is. She had never been able to express any affection toward the patient and felt that it was better not to be affectionate.

A number of points about the patient became clear that seemed to me to be pertinent to her problem in the hospital: (a) she had never responded well to coercion; (b) she had previously expressed her anxiety by disturbance in her eating function; and (c) most important, she was in mourning for her mother, and Rosa, who might have acted as a mother substitute, was, partly because of her own personality and partly because of frustrations in her situation, unable to express very much affection.

I felt, however, that there was enough warmth in Rosa's feelings toward her sister so that if she felt herself warmly accepted, her status appreciated, and her positive feelings encouraged, she would be able to be the kind of substitute for a loving mother which an older sister may sometimes provide. What I tried to do in effect was to be a warm and appreciative older sister to her so that she could be able to express similar feelings toward the patient. I concerned myself very sincerely not only with the problems of the patient but also with Rosa's problems. In this setting Rosa's freedom to show affection for her sister increased noticeably, and the patient's food intake increased without further scenes. Unfortunately, the progress of the disease could not be halted simply by an increased food intake. However, I think that the good relationship that existed between the patient and her sister during the last weeks of the patient's illness meant a great deal to both of them and decreased the inevitable feelings of guilt on her sister's part when the patient died.

I have told you this patient's story very briefly and perhaps too simply. It is true that we could not have a detailed understanding of her personality, but I wanted you to see how even an understanding of perfectly obvious factors and a very simple way of handling them could affect the patient's ability to eat.

TECHNIQUES ADAPTABLE TO NUTRITIONIST'S WORK

You may think that what was done by the social worker in this case was peculiar to the social worker's job, and certainly some aspects of it were. Nevertheless, I have seen the same kind of understanding used fruitfully by nutritionists working cooperatively with our unit at the hospital. I think even from the one case which I have discussed it will be evident that two things were of great importance in our work with the patient's nutritional problems: first, an understanding of the meaning of the situation to the patient, and second, the considered use of a personal relationship in the process of helping. Because a knowledge of the importance of these principles is essential to a sound basis for a cooperative clinical approach to nutritional problems, I have not concerned myself with any technical differentiation of the area of the social worker and of the nutritionist. Those things we will discover easily enough if we work together with a common understanding of the needs of the patient and of the importance of human relationships in solving his problems.

According to *Science*, the University of Illinois College of Agriculture is conducting an investigation of methods of killing bacteria in milk or water by ultrasonic waves. The research is being carried on by Robert M. Whitney, Professor of Dairy Technology, and Lillian A. Russell, Illinois State Water Survey chemist.

Daily Food Cost Accounting—Why and How

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SUCCESSFUL operation of a food establishment depends largely upon the ability of the manager to control costs. Raw food is the largest single cost and is the item over which the food manager must keep the greatest control, from the moment it is received at the back door until it is served to the customer. In order to plan wisely and to control costs, the food manager needs to take the time to determine the cost of food used each day. She should know the cost of portions served and the relationship of the daily food cost to daily income. If she has no information on operating ratios until the monthly statement is received, she may discover that the food department has been losing money for five or six weeks before she becomes aware of it.

BENEFITS OF DAILY COST ACCOUNTING

The furnishing of information about daily operations is probably the greatest benefit derived from a daily cost accounting system. When the food manager has a report each morning of the cost of food used during the previous day and of the number of meals served, she can determine whether the food cost is falling within the budget. By analyzing these figures, the manager can find the weaknesses in the food production and service before too much time has elapsed. If the average cost per meal remains above the budgeted allowance, the manager may need to revise menus in order to include dishes which cost less. An analysis of the daily food cost may also point toward lack of storeroom control. In other words, when daily food costs run high, the manager knows she must take action.

Accurate daily costs aid the management in establishing the price of meals. The computation of the cost of each serving of food must be completed first. If the institution is operating on a 50 per cent raw food cost, the selling price may be set at just twice the cost of the raw food.

A daily food cost system will also provide information to be used in establishing a file of recipes. Any institution which does quantity cooking should develop such a file. These recipes should be standardized as to ingredients and amounts. The standardized recipe card should include unit cost as well as total cost for each ingredient. If information about cost is included on the recipe card, together with yield in quantity and number of servings, the food manager has valuable information available when she plans menus.

Food departments of institutions that operate on a budget find the daily computation of food cost an indispensable guide in planning for future periods. On the basis of actual meal costs in past periods, the supervisor of the food department can begin her planning for the following period. With information at hand regarding food cost per day, together with number of meals served, the supervisor can estimate the cost per meal for the new budget, allowing for any anticipated changes in prices and any changes in type of menu.

Information on daily operations often serves as a check for financial reports for the month or quarter. For example, if raw food cost computed on the daily basis is 50 per cent of income, the cost of food used as shown in the monthly report should be approximately the same percentage. If there is a wide discrepancy between the daily report and the monthly report, the reason for the difference should be traced. The daily cost of food is usually based on direct purchases for the day and the storeroom requisitions, whereas the monthly statement is based on inventories at the beginning and end of the month, together with purchases. The dietitian who knows the day-to-day cost of food is in a position to maintain control of food costs and, therefore, can present better financial reports to the management.

The purpose of a daily food cost accounting system, therefore, might be considered five-fold:

(a) To furnish information to management about daily operations.

(b) To arrive at accurate costs to be used in establishing the price of meals.

(c) To standardize the cost of recipes.

(d) To give data for preparing operating budgets.

(e) To secure better financial reports.

METHODS OF COMPUTING DAILY FOOD COST

There are two methods of daily food cost accounting which can be used. One system has been

called the "recipe method," in which the cost of each menu item is determined. The second system might be termed the "requisition method," since it is based on storeroom and refrigerator requisitions.

The Recipe Method

Under the recipe method, the total cost for each item on the menu is computed on the basis of the ingredients of the recipe, from which the cost per serving is computed. Weights and measurements are recorded in E. P. (edible portion) figures and also in A. P. (as purchased) figures, since the cost of raw food is taken from the vendors' invoices. In Figure 1 can be seen an illustration of how the cost per serving of mashed potatoes might be computed.

To summarize the total cost of food for the day, the cost of all items on the menu must be added.

MASHED POTATOES	RECIPE QUANTITY E.P.	GROSS QUANTITY A.P.	UNIT COST	TOTAL COST
Potatoes	123 lb.	164 lb.	$.0425	$6.97
Milk	4 gal.	4 gal.	.5775	2.31
Salt	1½ lb.	1½ lb.		.02
Yield: 137 lb.				$9.30
Size of serving: 5 oz.				
Cost per serving: $.0212				

FIG. 1. *Example of manner in which cost per recipe can be figured.*

The Requisition Method

The other method, which has been termed the "requisition method," is based on the total cost of food used for a period, usually one day, regardless of the menu item in which it is used. This has been called the requisition method because most of the cost data come from storeroom and refrigerator requisitions, plus cost of food purchased daily and delivered directly to the kitchen. Figure 2 is an illustration of a storeroom requisition form which might be used to obtain information for food cost accounting.

After all of the storeroom and refrigerator requisitions for the day have been extended, the cost accountant should summarize them on a "Daily Food Cost Work Sheet." If the food items are listed in the same order on the requisitions and the work sheet (for example, following the classification of foods on inventory cards), the computation can be carried out quickly. As an illustration of a work sheet, the items for the cook's unit from Figure 2 have been entered in Figure 3. The cost of food used in all other kitchen units is placed on the work sheet to complete the cost of food used for the day.

What appears to be an advantage in one method of cost accounting may be a disadvantage in the other method. The advantages and disadvantages of the two methods of daily food cost accounting may be contrasted as follows:

REQUISITION METHOD	RECIPE METHOD
Advantages	*Disadvantages*
Computations do not require a great amount of time; information available to manager promptly	Many computations are required; a large menu requires considerable time

ITEM	BRAND, GRADE, SIZE	WEIGHT OR COUNT	COST	
			Unit	Total
Wheatena		2 pkg.	$ .207	$ .41
Rice	S & W	50 lb.	.341	17.05
Tabasco sauce	McIlheney	1 bottle	.33	.33
Tomatoes	Ambassador $\frac{6}{10}$	2 cases	4.60	9.20
Tomato purée	Sacramento $\frac{6}{10}$	1⅙ cases	5.25	6.13
Butter		6 lb.	.65	3.90
Eggs		18 doz.	.60	10.80
Beef	Chuck	159 lb.	.35¾	56.84
Green pepper		3 lb.	.26	.78
Onions		11 lb.	.06	.66
Peas, frozen	Bodle	77½ lb.	.17	13.18
Peas, frozen	Polar	71½ lb.	.17	12.16
				$131.44

Issued to——————Cook's——————Unit
Received by——————
Date——————

FIG. 2. *Form suitable for recording food issued from the storeroom and refrigerator.*

Advantages	*Disadvantages*
Only one person records amount of food issued	Reports of food used required from many workers
Easy for employees to understand	Employees need special instruction on weighing, etc.
	Difficult to get employees to keep records while preparing food
Reconciliation of perpetual inventory and physical inventory is possible	Reconciliation of perpetual inventory and physical inventory is practically impossible
Disadvantages	*Advantages*
Allocation of food costs to each menu dish or to each meal cannot be made	Records can be developed on the cost per serving
	Exact amount of profit or loss for each menu dish can be determined

Disadvantages	*Advantages*
	Basis is available for charging food out of main kitchen to various serving units

Those food managers who do not have adequate help to maintain a daily cost accounting system will, nevertheless, find it beneficial to make periodic checks by computing daily food costs for a period of a week or a month. A combination of the recipe and requisition methods may be most helpful to the majority of managers. The recipe method will give the manager information on the cost per serving which will aid her in future planning; the requisition method of daily food cost accounting will inform her what has occurred in the period already passed, and from which she must decide whether changes need to be made.

Date_____

Total	Item	Issued to			
		Cook	Bake shop	Salads and vegetables	Counter
	Storeroom Issues				
$ 3.58	Bakery supplies	$	$3.58	$	$
20.08	Cereals and cereal products	17.46			2.62
5.77	Coffee and tea				5.77
	Fruits, fruit juices, canned				
	Fruits, fruit juices, dried				
	Groceries, sundry				
3.08	Jams and jellies				3.08
	Meat, fish, canned				
.33	Pickles, relishes, sauces	.33			
13.26	Sugar, sirups, sundae sauces				13.26
15.33	Vegetables, canned	15.33			
	Vegetables, dried				
	Refrigerator Issues				
	Cheese				
14.00	Eggs	10.80	3.20		
7.40	Fats and oils, butter	3.90			3.50
	Fish				
12.59	Fruits, fruit juices, fresh			12.59	
12.38	Fruits, fruit juices, frozen				12.38
12.00	Ice cream				12.00
56.84	Meat, poultry	56.84			
20.23	Vegetables, fresh	1.44		18.79	
25.34	Vegetables, frozen	25.34			
	Direct Purchases				
68.99	Milk and milk products				68.99
9.72	Bread and rolls				9.72
$300.92	Total food cost for day	$131.44	$6.78	$31.38	$131.32
$586.69	total income for day				
51.29	per cent food cost				

FIG. 3. *Form suitable for use as daily food cost work sheet.*

Effect of Large-Scale Methods of Preparation on the Vitamin Content of Food

IV. Corn[1]

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CORN ON THE COB is a popular and typically American dish that has been largely neglected in studies of vitamin losses in cooking. The Tables of Food Composition (1) give the following values as typical of 100 gm. of the edible portion of fresh corn: 26.1 gm. dry matter, 150 mcg. thiamine, 140 mcg. riboflavin, 1400 mcg. niacin, and 12 mg. ascorbic acid. The present study offers data on the vitamin retention of corn when cooked on the cob by large-scale methods.

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[2] Acknowledgment is made to the following for their help in organizing this study and for their counsel and guidance so generously given in planning and carrying out this project: Lt. Col. Harvey K. Allen and Maj. James D. Ward, former Pentagon Post Restaurant Officers; Capt. Paul B. Morgan, present Pentagon Post Restaurant Officer; Dr. Robert S. Harris, former Consultant in Nutrition to the Secretary of War and Chairman of the Working Committee; Col. John B. Youmans and Maj. William F. Ashe, Office of the Surgeon General; Col. Paul P. Logan, Director of Food and Equipment Research, National Restaurant Association; Jane C. Ebbs, Office of the Quartermaster General; Dr. Paul L. Pavcek and Dr. Lester Teply, National Research Council, members of the Working Committee; James K. Switzer, former Manager of the Pentagon Post Restaurant and Mrs. E. Renshaw, former member of the Pentagon Post Restaurant; J. I. Finnegan, and other present members of the Pentagon Post Restaurant; J. B. DeWitt, Dr. E. M. Nelson, and Dr. C. D. Tolle, Food and Drug Administration; Dr. Gertrude M. Cox, University of North Carolina; Dr. Esther L. Batchelder and Sybil Smith, Department of Agriculture; Dr. J. W. Roe, George Washington University; Dr. Faith Fenton, Cornell University; Dr. Floyd S. Daft, National Institute of Health; Cmdr. Clive M. McCay, Naval Medical Research Institute; and Lura Mae Odland, National Research Council.

[3] The Pentagon Nutrition Laboratory functions under the auspices of the Quartermaster Food and Container Institute for the Armed Forces and the Pentagon Post Restaurant Council.

EXPERIMENTAL PROCEDURE

Plan of the Experiment

The general plan for this study was similar to that in previous studies on potatoes, carrots, cabbage, and spinach (2–5). Comparisons were made of the vitamin content of the edible portion of raw corn and corn cooked on the cob by large-scale methods.

A preliminary study of the variation in vitamin content of several samples of raw corn (each sample consisting of grain from ten ears of corn) showed an average deviation in assay value of 4, 4, and 10 per cent respectively for thiamine, riboflavin, and reduced ascorbic acid. It was calculated that by the use of eight or more replicate samples of ten ears each for each stage in preparation, the variations between samples could be overcome. The number of replicate samples assayed was as follows: raw corn, 12; boiled, 12; boiled-held, 9; and steamed, 11.

Batch weights were determined at pertinent stages in preparation. The batch weight of the edible portion of the cooked samples was expressed as a percentage of the raw weight of the edible portion.

Determinations were made of hydrogen ion concentration, percentage dry matter, and of the content of thiamine, riboflavin, niacin, and ascorbic acid.

Three lots of corn from as many localities, grown under unknown culture practices and to unknown stages of maturity, were used in this study. The corn arrived at the laboratory on the day after harvest and was stored at 35°F. until processed. Lot *1* consisted of Golden Bantam corn from New Jersey and was used after 9, 13, 21, and 23 days' storage at

the laboratory; Lot *2* consisted of Yellow Cross corn from Virginia and was used after 0, 2, 9, and 14 days' storage; Lot *3* consisted of Stahl's Evergreen corn from Maryland and was used after 1, 8, 13, and 15 days' storage.

Methods of Preparation

For each series fifty typical ears from a single lot were husked, and immature tips cut off. Ten ears were used for the raw sample. The remaining ears were cooked as follows:

Boiled. Thirty ears were put into a 13-gal. stockpot, covered with about 30 lb. of boiling water, and cooked on the top of a gas range until done. The cooking time was about 30 min. from the time that the water returned to the boiling point.

Boiled and held. Ten ears of the boiled corn were placed in a 1-gal. stainless steel tray and held over boiling water for 1 hr.

Steamed. Ten ears of corn were steamed in a tinned vegetable basket at atmospheric pressure (212°F.) until done, approximately 30 min. In a preliminary test, the vegetable basket was set over a tray to catch the liquid which collected during steaming. Assay of this small amount of liquid indicated that it contained less than 1 per cent of the vitamins present in the raw corn. The vitamin content of this liquid was thereafter disregarded.

Sampling

Ten ears of corn were used in the preparation of a sample. For samples of *raw* corn, the grains were cut off with a sharp knife and the cob scraped. The grains of *cooked* corn were pried off and the cob scraped. The proportionate weight of the grains that could be removed from the cob varied according to whether the corn was raw or cooked, soft or hard. Aliquots were prepared for analysis by making slurries of 75 to 325 gm. of grains with the appropriate stabilizing solutions and storing at 35°F. Liquid from the boiled corn was also sampled. It was found necessary to centrifuge slurries prepared for ascorbic acid analysis and to use the supernatant liquid for assay.

Methods of Analysis

Thiamine was determined by the thiochrome fluorophotometric method (6); riboflavin and niacin by the microbiologic method (7, 8). Total and dehydroascorbic acid were determined by the 2,4-dinitrophenylhydrazine method (9). Reduced ascorbic acid was calculated as the difference between total and dehydro. Palatability was judged by the staff.

RESULTS AND DISCUSSION

In a preliminary test, a comparison was made of the thiamine and riboflavin retention in corn cooked on the cob with that cooked off the cob. When the corn was steamed, there was little difference in retention whether the grains were cooked on or off the cob. When the corn was boiled, however, losses by leaching were much greater in the corn cooked off the cob. In corn boiled on the cob, the grains and liquid retained, respectively, 79.0 and 1.2 per cent thiamine and 87.5 and 11.1 per cent riboflavin. In corn boiled off the cob, the grains and liquid retained, respectively, 35.6 and 48.7 per cent thiamine and 50.7 and 56.2 per cent riboflavin.

In Tables 1 and 2 are summarized data on content and percentage retentions of vitamins and dry matter

TABLE 1

Vitamin content of fresh corn on the cob, raw and cooked*

DESCRIPTION OF SAMPLES	BATCH WEIGHT†	DRY MATTER	*p*H	THIAMINE	RIBOFLAVIN	NIACIN	ASCORBIC ACID		
							Reduced	Dehydro	Reduced and dehydro‡
	units	%		*mcg./100 gm.*	*mcg./100 gm.*	*mcg./100 gm.*	*mg./100 gm.*	*mg./100 gm.*	*mg./100 gm.*
Raw, grains									
Average	100	29.9		190	116	1640	7.9	1.25	9.2
Range		23–37	5.5–6.6	164–227	96–133	1080–2160	1.3–19.2	0.68–2.36	2.25–19.9
Boiled, grains									
Average	104	29.3		145	112	1360	5.4	.90	6.3
Range	92–115	23–37	5.8–7.1	111–184	91–118	1000–1860	0–14.8	0.35–1.85	0.44–15.8
Boiled, liquid									
Average	238	0.35		1.3	6	110	.03	.04	.07
Range	147–442	.01–.84	6.0–7.7	0.7–2.6	2–11	32–203	0–0.19	0.01–0.07	0–.020
Boiled-held, grains									
Average	101	30.9		144	109	1520	5.7	1.04	6.8
Range	89–115	25–37	5.8–7.8	120–172	70–122	1120–1830	0–12.8	0.03–1.52	0–14.0
Steamed, grains									
Average	99	31.1		156	115	1710	5.9	1.01	6.9
Range	90–110	27–37	5.8–7.1	134–198	102–133	1090–2150	0.06–17.6	0.50–2.10	0.79–18.8

* Average values based on nine to twelve replicates.

† Batch weights were determined at pertinent stages in preparation as described previously (2).

‡ Determined by the method of Roe and Oesterling (9) as total ascorbic acid.

in the edible portion of corn, raw and cooked on the cob. Percentage retentions were calculated on the batch weight basis (2), expressing the vitamin or dry matter content of the cooked product as a percentage of the content of the related raw material.

When corn was cooked on the cob, there was little difference in vitamin or dry matter retention between boiled and steamed corn. Palatability and appearance were also little, if at all, affected by the method.

The percentage losses in cooking by each method and the differences in vitamin retention between cooking methods are summarized in Table 3. The significance of these differences, tested by Student's "t" method (at the 95 per cent level) as described previously (2) is also shown in Table 3.

Niacin was apparently not destroyed in cooking, but 12 per cent was leached into the water in which the corn was boiled, so that the total recovery of

TABLE 2

Vitamin retentions in fresh corn on the cob, boiled and steamed

DESCRIPTION OF SAMPLES	BATCH WEIGHT	DRY MATTER	THIAMINE RETENTION	RIBOFLAVIN RETENTION	NIACIN RETENTION	ASCORBIC ACID RETENTION	
						Reduced	Reduced and dehydro
	units	%	%	%	%	%	%
Raw, grains							
Average*	100	100	100	100	100	100	100
Boiled, grains							
Average*	104	102	80	97	87	60	63
Range	92–115	86–124	69–92	79–120	65–108	0–106	11–92
Boiled, liquid							
Average*	238	3	1	12	14	1	2
Range	147–442	0–7	1–3	4–22	7–26	0–4	0–8
Boiled, grains plus liquid							
Average*		105	81	109	101	61	65
Range		88–127	70–94	88–124	85–128	0–106	13–93
Boiled-held, grains							
Average*	101	105	80	97	87	55	58
Range	89–115	89–119	69–92	64–121	73–107	0–78	0–74
Steamed, grains							
Average*	99	103	85	101	103	62	64
Range	90–110	76–120	72–94	95–119	83–117	2–93	19–94

* Averages of the individual percentage retentions calculated for each series.

TABLE 3

Differences in percentage retentions of vitamins between stages in large-scale preparation of corn on the cob and a test of their significance†*

STAGES COMPARED	THIAMINE		RIBOFLAVIN		NIACIN		ASCORBIC ACID			
							Reduced		Reduced and dehydro	
	Differences	Least significant difference‡	Differences	Least significant difference‡	Differences	Least significant difference‡	Differences	Least significant difference‡	Differences	Least significant difference‡
Raw *and* boiled	*−20*	5	−3	7	*−13*	8	*−40*	20	*−37*	14
Raw *and* boiled and held	*−20*	6	−3	12	*−13*	10	*−45*	18	*−42*	17
Raw *and* boiled plus liquid	*−19*	5	*9*	6	1	8	*−39*	19	*−35*	12
Raw *and* steamed	*−15*	6	*1*	6	3	7	*−38*	17	*−36*	13
Boiled *and* boiled and held	0	4	0	8	0	7	−5	10	−5	7
Steamed and boiled	−5	8	−4	5	*−16*	9	−2	9	−1	6

* Differences were derived from percentage retentions in Table 2.

† Differences as great as or greater than the value calculated as the least significant difference are considered significant. These are italicized. A negative sign is used when the vitamin content of the first stage in the comparison was greater than that of the second stage; no sign is used when the reverse was true.

‡ At the 95 per cent level; calculated by Student's "t" method described previously (2).

niacin was close to 100 per cent. Riboflavin retention in boiled and steamed corn was close to 100 per cent, but an additional 12 per cent was found in the water from boiling. The apparent recovery of over 100 per cent of riboflavin from boiled corn plus its liquid may be due to the fact that the method of extracting the vitamin for analysis was less effective on the raw samples than on the cooked.

Losses of thiamine and ascorbic acid were due almost entirely to destruction. Of the 20 and 15 per cent of thiamine and the 40 and 38 per cent of ascorbic acid lost in boiling and steaming, respectively, only 1 per cent was found in the liquid from boiling, while the amount in the liquid from steaming was too small to be considered.

Holding the boiled corn over boiling water for 1 hr. caused no significant losses of the nutrients studied.

Raw corn contained about 15 per cent as much dehydroascorbic acid as reduced. No important change in this proportion occurred during cooking, and the amounts of dehydroascorbic acid were fairly unimportant in any case.

There was considerable variation from batch to batch in percentage retention of vitamins and dry matter. This is probably due to a number of factors, among them variability due to the use of three lots of corn from different localities, of different varieties at unknown stages of maturity, and after varied periods of storage. There was a rather wide ange of difference in the original proportion of grain to whole ear. For instance, in the case of the raw samples of Lots *1*, *2*, and *3*, the grain constituted 62, 69, and 58 per cent respectively of the weight of the whole ears. Average content per 100 gm. for Lots *1*, *2*, and *3* were respectively as follows: dry matter 29.2, 35.8, and 24.9 gm.; thiamine 218, 174 , and 177 mcg.; riboflavin 124, 110, and 113 mcg.; niacin 1230, 1980, and 1720 mcg.; and reduced ascorbic acid 3.9, 13.2, and 6.8 mg. The number of replicates processed, however, tended to overcome these difficulties and to yield data on retention of statistical significance, as shown by Table 3.

In the case of ascorbic acid, variation in percentage retentions was increased by an additional factor. It was found that those batches having a higher ascorbic acid content when raw tended to lose smaller percentages in cooking (Fig. 1) but larger absolute amounts. For instance, in the six batches having the lower content of reduced ascorbic acid (average 4.5 mg. per 100 gm.), losses per 100 gm. of the raw corn were 2.2 and 1.9 mg. in boiling and steaming, while in the six batches having the higher content when raw (average 10.9 mg. per 100 gm.), losses per 100 gm. of the raw vegetable were 2.6 and 3.1 mg. in boiling and steaming. Detailed data in this connection are presented in another paper (10).

SUMMARY

A study was made of the vitamin content and percentage retentions of the edible portion of fresh corn

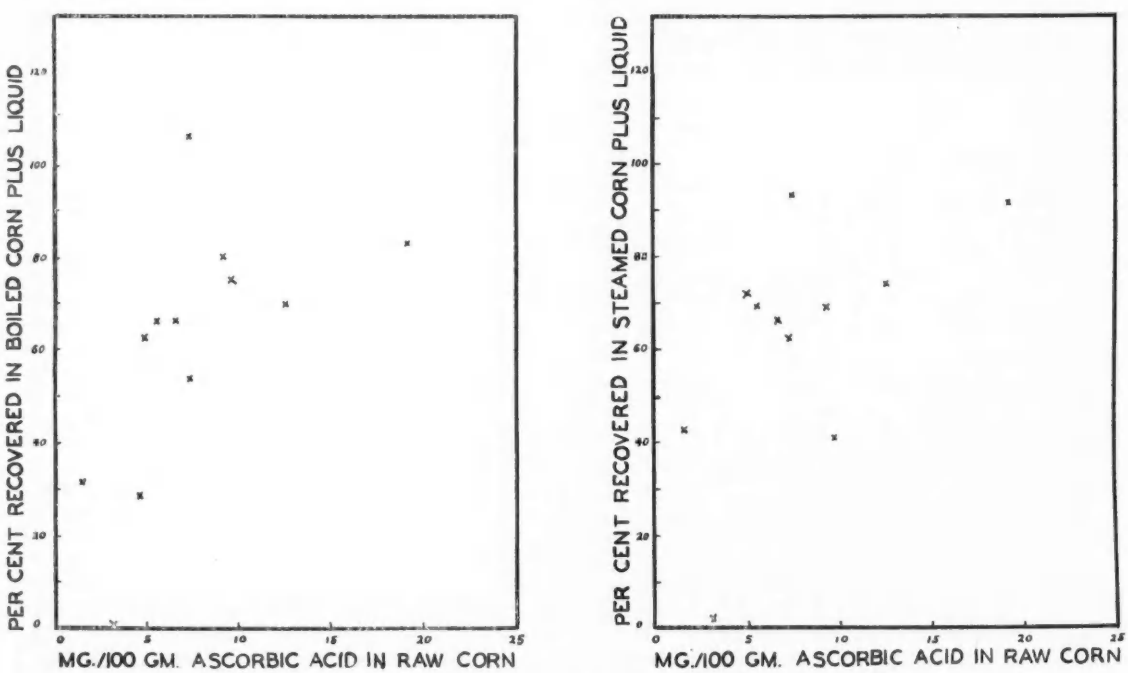
PER CENT RECOVERED IN BOILED CORN PLUS LIQUID
MG./100 GM. ASCORBIC ACID IN RAW CORN
PER CENT RECOVERED IN STEAMED CORN PLUS LIQUID
MG./100 GM. ASCORBIC ACID IN RAW CORN

FIG. 1. *Relationship between ascorbic acid content of raw corn and percentage retention during cooking.*

on the cob, raw and cooked by large-scale methods. The corn used was of three different varieties and from as many localities.

Percentage retentions were calculated to express the vitamin content of the cooked product as a percentage of the content of the related raw material. Losses in cooking by each method and differences in vitamin retentions between cooking methods were examined statistically for significance.

Raw corn contained per 100 gm.: dry matter, 29.9 (23 to 37) gm.; thiamine, 190 (164 to 227) mcg.; riboflavin, 116 (96 to 133) mcg.; niacin, 1640 (1080 to 2160) mcg.; reduced ascorbic acid, 7.9 (1.3 to 19.2) mg.; and dehydroascorbic acid, 1.25 (.68 to 2.36) mg.

Boiled corn retained 102 (86 to 124) per cent dry matter; 80 (69 to 92) per cent thiamine; 97 (79 to 120) per cent riboflavin; 87 (65 to 108) per cent niacin; and 60 (0 to 106) per cent reduced ascorbic acid. Holding the boiled corn over boiling water for 1 hr. caused no significant losses of any of the nutrients studied.

Steamed corn retained 103 (76 to 120) per cent dry matter; 85 (72 to 94) per cent thiamine; 101 (95 to 119) per cent riboflavin; 103 (83 to 117) per cent niacin; and 62 (2 to 93) per cent reduced ascorbic acid.

Total recovery of vitamins from the boiled corn and the water in which it was cooked was 81, 109, 101, and 61 per cent thiamine, riboflavin, niacin, and reduced ascorbic acid respectively. Water from steaming contained less than 1 per cent of the vitamins present in the raw corn. Thus losses of thiamine and ascorbic acid were almost entirely by destruction. Those batches having higher concentrations of ascorbic acid tended to lose, in cooking, larger absolute amounts of ascorbic acid, but lower percentages.

Percentage retentions of vitamins and dry matter varied greatly from batch to batch because of sampling difficulties inherent in the nature of the material studied. Enough replicates were assayed to give average percentage retentions that were statistically significant.

In a preliminary test, corn boiled off the cob showed much greater losses by leaching of thiamine and riboflavin than did corn boiled on the cob; when the corn was steamed, there was little difference in retention of these vitamins whether the corn was cooked on or off the cob.

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Fish Protein vs. Meat Protein

A study to learn the effect of a fish diet on red cell count and on hemoglobin value of human blood was conducted with the cooperation of the College of Home Economics, University of Maryland by Dr. Hugo W. Nilson and Shirley J. Wilson of the Fish and Wildlife Service, Department of the Interior.

Women students serving as subjects ate a diet of their own choice for three weeks, during which tests were made of their red cell counts and hemoglobin values. During the next seven weeks, four of the girls ate fish foods as the entrée in their big noon-day meal and stopped eating meat altogether. They ate fresh-water fish, salt-water fish, and shell fish. Blood tests made at the end of this time showed that the red cell counts and hemoglobin values of these subjects on fish diets had remained the same as when they had been eating meat as they chose. —*From Food Field Reporter, August 30, 1948.*

Editorial

COLORADO CALLING!

One of the chief attractions of any convention is the opportunity for scenic trips. Denver, being an outstanding resort and vacation center, stands second to none in this line. It has a number of commercial firms which will arrange trips at reasonable rates, with cabs and limousines for small groups and busses for larger numbers.

What are some of the things to be seen in and around Denver? Where are some of the places you might visit? Where will you go and why, if you come to attend the American Dietetic Association's 32nd Annual Meeting to be held in Denver from October 10 through 14?

Will you have a day and a half to play? How about a trip to Grand Lake by way of Estes Park and Trail Ridge Road, which passes through Rocky Mountain National Park. If the weatherman should furnish early snows and close Trail Ridge Road for the winter, the trip might be made through Berthoud Pass. Rocky Mountain National Park, at the east entrance of which is the village of Estes Park, consists of 405 square miles of superb mountain scenery, including fourteen peaks towering over 13,000 ft., as well as scores of crystal-clear lakes, rushing streams, babbling brooks, dashing waterfalls, and rugged mountains. What more gorgeous trip could one ask for?

Or, would you like to spend one day on a trip to Pike's Peak and the surrounding sites? The Cave of the Winds, Seven Falls, the Garden of the Gods, Cheyenne Mountain with the Will Rogers Shrine—these are the fascinating names of fascinating places in that vicinity.

Still another day's trip might be to Central City, one of the most famous historical spots in the state. En route, you will see Red Rocks, the great natural amphitheater where concerts under the stars are enjoyed, and Lookout Mountain, on the top of which is Buffalo Bill's grave. From there is a wonderful view of the plains and Denver to the East.

But these aren't all the possibilities. There are Mt. Evans, with its highest highway in the world; the Vista-Dome trains to Glenwood Springs, through Glenwood Canyon, one of the most beautiful scenic regions; and the Royal Gorge with the country's highest suspension bridge. If snow conditions are right, there may even be skiing to enjoy, and the mountain aspens may still be shimmering gold. In addition to all of these wonders, the million dollar highway beckons you to Ouray and Durango and Mesa Verde, with its cliff dwellings.

Denver itself is not to be ignored, either. The Colorado Museum of Natural History at City Park attracts thousands of visitors each year. The United States Mine, one of four in the country, this summer is coining silver dollars for China. And there are the Civic Center . . . the Capitol, with its gilded dome . . . colleges . . . the industrial area . . . the beautiful city parks . . . and Daniels-Fisher tower where for 12 cents one can see miles and miles in all directions.

Have we said enough? Can you hardly wait for October? Colorado is truly calling to dietitians this year, and your Denver colleagues will be looking for you.—*Mabelle V. Williams, Local Chairman, Public Relations Committee, Colorado Dietetic Association.*

VIOLET M. RYLEY

Thirty-one years ago at a Lake Placid Conference, Violet Ryley, the first dietitian to hold a commercial post on the American continent, listened to an address on "The Twelve Principles of Efficiency" with special reference to motion study, by the world-famous expert in scientific management, Frank B. Gilbreth. Dr. Gilbreth's ideas seemed to her revolutionary, convincing, practical. They stimulated her mind and confirmed her belief in her experiments with new processes, new patterns, new systems in that branch of household science which was to become her special pride and interest—commercial dietetics. From that moment, she dedicated herself anew to the search for and incorporation in her work of the best and newest methods, the most saving of time and labor, the most satisfying and productive to staff and public alike.

Violet Ryley graduated in 1907 as a pioneer in the home economics course of Lillian Massey Treble School in Toronto, under Annie L. Laird. Later she did postgraduate work in the New York City Hospital and was for a time a student dietitian at the Albany General Hospital. Here she learned the first lesson of the perfectionist, to be meticulous, to spend half an hour if necessary tasting a stew to

insure the excellence of its flavor. The supervisor told her, "To the patients their food is often their only pleasure. It is up to us to have it as perfect as it can be," and Violet Ryley never forgot.

Next she organized and was in charge of the University of Toronto Dining Hall, later Hart House. Here she first put into practice the relay system of cooking, aimed at achieving as closely as possible the perfection of the finest home cooking. Then, in February, 1917, in the most troubled days of World War I, when the returning casualties were creating a tremendous problem, she was loaned to the Canadian government to become General Organizing Dietitian for the Military Hospital Commission. It was during this three-year period, when enormous demands were made upon her creative energy, her initiative, her efficiency, and her vitality that she established firmly her reputation as a woman of rare executive and administrative capacity, with a genius for commanding and retaining the respect and cooperation of the women *and* men who worked with her.

In the next thirty years, Violet Ryley was to exercise a decisive influence on the development of the profession of dietetics in Canada, where she was affectionately considered the "dean" of Canadian dietitians. Her friendship with leaders in educational and commercial fields in the United States and her membership and interest in the American Dietetic Association, of which she was a charter member, and the National Restaurant Association, brought her recognition in the States as well, where she had long been regarded by American dietitians as one of the great women in the profession.

During those thirty years, she organized and directed the food services for Bigwin Inn, which became one of Canada's most famous summer hotels. Then, at Lady Eaton's request, she organized and for twenty-six years was Supervising Dietitian of the Food Services of the T. Eaton Co. in Toronto, Montreal, and Hamilton, a task offering ample scope to demonstrate her flair for finance and her unshakable belief in women's special abilities in the field of business. She had the great satisfaction of developing revolutionary methods in food management and of seeing an enormous expansion during her lifetime. Before her retirement on February 7 of this year, her department in Toronto alone was serving 35,000 people daily.

At the beginning of World War II, it was learned by the medidal profession that the rations provided for the men in the services were nutritionally inadequate. Miss Ryley's assistance was sought in an effort to establish an organization that could adequately meet the demands. The Messing Branch of the Royal Canadian Air Force, under the late Kathleen L. Jeffs and staffed primarily by trained dietitians, many of them Miss Ryley's assistants or women trained by her, was formed in 1942, and still exists in the permanent force. The magnificent results of this service justified her confidence in the ability of women to administer such an exacting project.

She achieved the highest honors in the various organizations of her profession: Honorary President, Canadian Dietetic Association; Honorary President, Toronto Dietetic Association; Honorary President, University of Toronto Household Science Alumnae; and member of the National Nutrition Committee of the Canadian Red Cross.

Miss Ryley was always available to give advice and assistance to such organizations as the food services of the Y.W.C.A. , Bolton Camp (a project for underprivileged children), and to educational, governmental, and industrial organizations in the development of food service programs. As she was an outstanding expert in kitchen planning, she was frequently consulted by large business organizations, hospitals, and universities for her help with plans and specifications.

Her work was marked by enthusiasm, optimism, conviction, integrity of purpose, by an insistence on quality and excellence and by a passion for what was progressive and constructive in planning and method. She was capable of intense concentration when her mind would probe the basic facts of a complicated situation. When she had mastered these and had sufficiently weighted the various factors, she was prepared to bring forward and follow through proposals no matter how daring and revolutionary they might appear on the surface. To Violet Ryley, to assent was to accept, and to accept was to incorporate in principle and in action.

She had from the beginning great administrative capacity and an ability—too rare in all professions—to delegate, as well as to accept responsibility. Many people will feel that this was her greatest contribution, for she was determined to develop the potential greatness of those who worked with her.

Miss Ryley never failed to acknowledge the support and encouragement she received from C. O. Shaw, owner of Bigwin Inn, and from Lady Eaton. To the latter she always gave credit for her courage in opening to women for the first time in Canada the opportunities in a field of business where their special gifts could be employed to the full. Violet Ryley felt that the skilled dietitian should be a psychologist as well as an efficiency expert, an artist as well as a food specialist, and a student of research. Food should be lovely to look at as well as nourishing and appetizing. Hot things must be hot, cold things cold. From her experience in the military hospitals in World War I, she realized that convalescence can be speeded with returning appetite and that appetite can be sharpened by the attractive appearance and arrangement, flavor, and consistency of foods. From the day she realized that the preparation of food could be part of her religion and philosophy of life,

she never lost that vision, and she sought to awaken and foster it in those with whom she worked.

Violet Ryley found her work engrossing and satisfying. Her nature was optimistic, buoyant, positive, and happy. She never lost (and that was one of her greatest charms) a sense of the freshness of things. There was about her always an essential simplicity and directness, and despite her burden of responsibility and the many demands made on her by outside committees, she never became hard and sophisticated. Impeccable in taste, immaculate in her personal grooming, she was essentially a gracious, approachable, direct, sincere person. She had no affectations, no protective armor of pose and insincerity; she was completely herself.

Until her sudden and unexpected death in April, her interest in young people entering the profession which she thought was the finest in the world never flagged. The experience of those who came into close relationship with her in work or in conference was invariably the same. Added to all of her qualities of mind and will was a pervading grace of spirit that produced a courtesy and consideration it is difficult to describe.—*Irene Irwin Clarke, Vice-President, Clarke, Irwin & Company Limited, Toronto.*

MARY A. LINDSLEY

On May 20, Mary Augusta Lindsley died suddenly at her home in Morristown, New Jersey. Busy until the last, Miss Lindsley had spoken in the afternoon before a group, discussing the Restoration of Williamsburg, Virginia—a subject of great interest to her because of her close connection with the work of colonial Williamsburg.

Miss Lindsley was a native of New Jersey and a graduate of Pratt Institute, specializing in food production. Then followed several years as dietitian at Harrisburg General Hospital, Harrisburg, Pennsylvania; the Woman's Hospital of New York; and Cook County Hospital, Chicago.

With our entry into World War I, Miss Lindsley enlisted with the American Red Cross and as a dietitian went to France with the first contingent of nurses. She was assigned to British Base Hospital No. 2, Dame Camiers, and served there until the end of the war.

On her return to this country, she received a message to come to Washington to organize and manage the restaurants for the Government Hotels for War Workers, the group of temporary buildings then standing on the Union Station Plaza. So urgent was the summons that she literally had to "roll up her sleeves" and begin with no time even to collect her baggage and clothes. For those first busy days, the laundry obligingly laundered her clothes at night, to wear the following day!

So outstanding was her success that the Committee of the Young Women's Christian Association, sponsoring the building in 1919 of the Grace Dodge Hotel (later the Dodge Hotel) in Washington, urged Miss Lindsley to become its manager. This was a new field, but to it for the next seventeen years she brought all of the resources of her experience, ability, genius, and enthusiasm. No woman (it was a women's hotel) who visited the Dodge Hotel can forget its distinctive atmosphere, which truly reflected the ability and charm of its manager. One could always find Miss Lindsley busy—perhaps she was arranging the flowers which formed so gracious a background, or she may have been discussing new equipment or furnishings or stopping to chat with the guests. No detail was too small—no problem too big for her earnest attention.

A notable feature of the Dodge Hotel was its "no tipping" policy. That it worked successfully with 95 per cent of the guests and employees was due in large part to Miss Lindsley's tireless efforts and abiding faith in it. Many times she gathered the employees together to explain the policy in terms of the democratic standards it offered in putting all employees on the same plane. However, guests often wished to leave some gift in appreciation of the willing service they had received, and so the "Christmas Fund" evolved. In this were placed all tips left and other gifts to the Fund. Then, on Christmas night a most impressive ceremony was held at which the Fund was distributed to the employees on the basis of years of service.

Food and food production were always of primary interest to Miss Lindsley. It was not strange, therefore, that the emphasis at the Dodge Hotel was on good food, and that Miss Lindsley was willing to pioneer along many untried paths to add interest, variety, and allurement to the menus.

She was also keenly interested in the practical training of dietitians. Each summer at the Dodge Hotel two or more girls studying home economics in college were afforded the opportunity to work in the kitchen and restaurant offices. Not long ago, one of these girls, now managing a large cafeteria for a public utility company, remarked that the training along practical lines she had received under Miss Lindsley had been invaluable to her.

While at the Dodge Hotel, Miss Lindsley has been associated closely with Mrs. John D. Rockefeller, Jr., the Chairman of the Board of Directors of the Hotel Committee of the YWCA. It thus came about that Mr. and Mrs. Rockefeller were anxious that Miss Lindsley should have some part in the restoration of colonial Williamsburg. For several years—from 1930 to 1936—she acted as consultant for the Williamsburg Taverns and Ordinaries. With the building of Williamsburg Inn, however, she gave up her work at the Dodge Hotel to devote full time to the Williamsburg work. In 1937, after the Inn had been built and was operating, Miss Lindsley was forced to resign because of ill health.

After a period of rest, the next few years were spent in various activities, including travel and lecturing. When our country was drawn into World War II, she was called to Washington by the American Red Cross to organize and teach institutional administration to the field directors who were being sent to all parts of the world to head up the Red Cross units. Miss Lindsley remained with this work until after the end of the war.

Part of the training she gave these field directors was along food lines. She frequently said, "They must learn to distinguish between the food needs for men at a submarine base, at an aviation base, and a combat base." She encouraged her classes to make scrap books of colorful food advertisements from magazines. These scrap books travelled all over the world, and hosts of letters to her told of the help they were in foreign lands. One man wrote from China that only the pictured food enabled him to make his Chinese cooks understand what he wanted.

To all who knew Mary Lindsley she brought inspiration, warmth of interest, zest, and the joy of work and accomplishment. She made her work an integral part of her life, weaving into it the rich resources of character, personality, and vision which she possessed. Honest striving, whether by a dishwasher or an executive, gained her appreciation and praise, for she realized to an unusual degree how each fine effort contributed to a perfect whole. It was a rare privilege to work with her.

Miss Lindsley was one of the outstanding pioneers in the dietetic profession and had been a life member of the American Dietetic Association since 1928. She served the Association in many ways, including a three-year period when she was the national Legislative Chairman from 1933 to 1936. She was also a member of Omicron Nu, the American Home Economics Association, the Women's Overseas Service League; the Washington Zonta Club, and the Daughters of the American Revolution.—*Frances A. Burns, Reservation Manager, Williamsburg Inn and Lodge, Williamsburg, Virginia.*

REVISION OF A. D. A. CONSTITUTION

Following the discussions at the meetings of the American Dietetic Association last October in Boston, much correspondence, and several long conferences, the Constitution Committee of the Association has evolved (a) a chart of organization, (b) a chart of functions of the various branches of the organization, and (c) a proposed constitution. The charts will be presented in the September issue of this JOURNAL, together with a discussion of the proposed constitutions and the reasons for the proposals.

The Committee feels that the proposed constitution meets the wishes expressed by the members in Boston. It provides for the House of Delegates to carry the professional work of the Association and for it to be well represented on the Executive Board and the newly formed coordinating body. The Executive Board will be responsible for those activities which are legal requirements in the State of Illinois, in which the Association is incorporated.

Please read the discussion in the September JOURNAL and study the proposed constitution so that you will be well prepared to enter into any discussion that may develop in Denver.—*Anna Boller Beach, Chairman, Constitution Committee, American Dietetic Association.*

ADVANCE CONVENTION PROGRAM NOTES

The tentative program of the 32nd Annual Meeting of A.D.A. will be published in the September issue of the JOURNAL.

The open meeting will be held on October 13. One of the speakers will be Dr. Franklin D. Murphy, Dean of Medicine, University of Kansas Medical Center. His topic will be "Rural Health Services." At another session "Recent Advances in Nutrition as a Result of Radioisotope Research" will be the subject of Dr. Bernard Roswit, Director, Radioisotope Unit, U.S. Veterans Hospital, The Bronx, New York. Mrs. Ethel Austin Martin, who is now in Europe attending nutrition conferences, will report on current research in nutrition. The session on the history of nutrition and dietetics features the centennials of the birth of three outstanding personalities. Mrs. Mary P. Huddleson will present a paper on Mrs. Sarah Tyson Rorer's contributions to early dietetics. Dr. Clara Storvick will review Kjeldahl's work on the determination of nitrogen. Dr. Helen S. Mitchell will speak on the contributions of the Russian physiologist, I. P. Pavlov. Other highlights of the program will include sessions on administrative problems of food service, layouts, personnel, and equipment.

The Community Nutrition Section inaugurated a project this year by planning a symposium on "Prematurity, Prevention and Care." Co-chairmen are Ansta Barr and Gladys Kinsman Lewis. Participants will be Dr. John A. Lichty, Associate Professor of Pediatrics; Dr. Harry H. Gordon, Professor of Pediatrics; and Dr. E. Stewart Taylor, Professor of Obstetrics and Gynecology—all of the University of Colorado School of Medicine. Other members of the panel will be Helen Cannon, Director, Section of Social Service, Colorado State Department of Health; Johanna Clymer, Clinic Dietitian, University of Colorado Hospitals; and Ruth Couwlier, R.N., Denver Visiting Nurse Service.

Members are requested to send hotel reservation requests to the Denver Convention and Visitors Bureau.

Current Comment

DEALING IN A HABIT CLINIC WITH EATING PROBLEMS OF CHILDREN

HEDWIG REBECCA POEHLER

Nutritionist, Milwaukee Health Department

Five years ago, the Milwaukee Health Department initiated a combined nutrition and mental hygiene program at the instigation of the supervising public health nurses, who were consulted about behavior problems of various kinds, including poor eating habits, by mothers attending well-baby clinics. Since these clinics were established primarily to keep the babies physically well, there was no provision made to take up behavior problems which were distinctly in the realm of mental health and which required the supervision and direction of one in the field of mental hygiene or psychiatry.

In March, 1942, Dr. M. L. Kirkpatrick of the American Mental Hygiene Committee made a survey in the greater Milwaukee area to determine whether the needs of the community were being met by the existing guidance clinic facilities. This survey included the Milwaukee Health Department and its needs. Thus the need, highlighted by the supervising nurses' experiences, of guidance for mothers of pre-school children was considered. Dr. Kirkpatrick suggested that a Habit Clinic be initiated by the Milwaukee Health Department through cooperation with the Director of the Milwaukee County Guidance Clinic. This was the origin of the mental hygiene program discussed in this paper.

COOPERATION BETWEEN HABIT CLINIC AND NUTRITION DIVISION

It is of interest to trace the close relationship between the Habit Clinic and the Nutrition Division of the Milwaukee Health Department. Although the pre-school children coming to the well-baby conferences present a variety of behavior aberrations, poor eating behavior leads all the rest in frequency. Parents may be complacent about many angles of our present nutrition problem, consumer problems, deficient foods, high costs, overeating, underweight, food preparation, loss of nutrients in cooking, and so on, but they are never complacent about their children's refusal to eat or their dawdling over foods. In this respect they want help and feel free to ask the nurses for it. Thus the nutrition problem that public health nurses meet most often in their districts is the refusal on the part of pre-school children to eat the amounts and kinds of food specified by their harassed parents. The poor eating habits of older children and adults also baffle the parents. This then is the problem with which nurses wanted help, and nutritionists, in order to give them assistance, needed the help of psychiatry or a good background in mental hygiene for understanding the underlying causes not only of eating behavior but of all poor behavior, because all behavior is interrelated.

Those planning the program asked the nutritionist to conduct the supervisory casework activities and consultant service between the Nurses' Division and the Habit Clinic. Since eating behavior is as much in the realm of psychiatry as nutrition, the two should be considered together.

In the book *Psychology of Diet and Nutrition* (1), the authors agree that there is a need for psychiatrists to understand the principles and concepts of nutrition and for nutritionists to understand the principles and concepts of mental hygiene. In fact, they discuss at some length the term "psychodietetics" which indicates the close relation between the two subjects and the need for more cooperation on the part of the two professions to attack adequately our present nutrition problem. It seems a key to the solution, for until members of each profession realize and accept the fact that the other has some fundamental concepts which must be respected, there will be chaos in the area of eating habits.

The program of the Habit Clinic is definitely an educational undertaking which includes instruction of several groups—mothers, public health nurses, nursing supervisors, and the nutritionist as well. It operates one-half day a week, at which time three mothers are given individual, 45-min. appointments for a conference with the psychiatrist. The children with whom they are having difficulty are also interviewed alone for a few minutes before the conference with the mother takes place in the absence of the child.

Case-finding activities are continuous through home calls made by public health nurses in the

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interests of various aspects of community health—school hygiene, tuberculosis, pre- and post-natal calls, child welfare, and contagious disease. In a community program, the health of the whole family is considered, even though the initial cause for a visit may be the illness of one individual. During home calls, new patients are constantly being found and added to the waiting list for entrance to the clinic.

REASON FOR CHILDREN REFUSING TO EAT

Since refusal to eat is a phenomenon of recent origin that has been gaining momentum in the last fifty years, it seems not out of order to hazard a guess as to some of its real causes. The widespread trend of artificial feeding of infants has been, no doubt, responsible for much forced feeding. When a baby is breast fed, the mother does not know how much food he gets at each feeding and therefore does not worry whether he ate 4 oz. or 6. Much anxiety is avoided in this way. In artificial feeding, each bottle usually contains an equal part of the day's rations and the mother can see just how much the baby is getting. She insists on his emptying the bottle regardless of whether his appetite is large or small.

Later on, when the baby eats supplementary foods, the mother receives diet cards telling what and how much babies should eat at various age levels. Although these are intended as general guides, the untutored mother takes the suggestions literally. If the baby doesn't eat the specified amount, the mother worries. Very soon the child becomes aware of the fact that the parents are anxious about his not eating, and this knowledge may affect him in one of several ways. He may become anxious, too. Or, he may use the parents' anxiety as a weapon to play on their sympathies, or to gain his own ends, or as an attention-getting device. The child learns very early that "not eating" is a way of getting his parents' attention, and he *does* need parental attention, but not the kind gained by unacceptable eating behavior.

IMPORTANCE OF DEVELOPING GOOD EATING HABITS

It is an axiom in the field of child development that all developmental processes depend on the preceding processes if an orderly course in the matter of physical and emotional maturation is to be achieved. This sequence of events is true at both pre-natal and post-natal levels and in the physical as well as the emotional growth. Learning to eat in an acceptable manner and with acceptable attitudes falls into a certain period of the child's development; in fact, it is the first habit the child learns. When no pressures have been exerted and the parental pattern has been good, a child will eat nonchalantly and by the age of two and a half to three years will be a competent little eater. He accepts food and meals as casually as breathing and playing. In such a family, mealtime will be agreeably calm despite the presence of small children. In this event the other developmental phenomena will fall into place and proceed according to schedule.

If, on the other hand, the process of eating has been interfered with because of pressure, anxiety, or poor adult patterns, all other stages of a child's development are also hindered. Thus, establishing good eating habits at the proper developmental period (which is a big enough issue in itself), is more than a matter of being well nourished; it is a matter of growing up on schedule, of becoming emotionally mature and being able to take an adequate role in adult life and, in the long run preventing the vicious cycle of poor eating habits in the succeeding generation. We must not lose sight of the "long run" when developing eating habits. A lack of orderliness in the basic habits, such as eating, has a disintegrating effect on the personality (2).

When we review case histories of maladjusted adolescents or adults, we often find that they have had a record of poor eating habits dating back to the pre-school age. We can be sure, too, that although of mature stature they will point with pride to such poor eating habits as a distinction, not recognizing such behavior as a maladjustment. In pre-school children, poor eating habits are a part of a constellation of generally unacceptable behavior traits. Anyone who tries to correct such manifestations singly, as for instance the eating pattern, without consideration of the whole behavior pattern, is bound to be disappointed. Every aspect of a child's behavior has a common cause and when that cause is removed, the constellation of unacceptable behavior traits gradually disappears. The cause usually can be traced to the parents' own emotional immaturity which leads to unstable handling of the child and results in subsequent conflict in the child's personality. Thus, the treatment of the child consists of filling in the gaps that were left in the parents' own childhood developmental processes and emotional growth.

Our Habit Clinic program aims to help parents to change their management of the child. As the parents gain insight and understanding of the child's needs, they remove the pressures that cause tensions and use better treatment with consistency until the child knows what to expect in his environment whether at the table or at bedtime or in the many situations that arise from time to time.

HOW TO PROMOTE GOOD EATING HABITS

A general understanding of the cause of eating problems among all people who handle children would result in a change of method in teaching nutrition. It is not enough to tell mothers what the

Canned Foods as a Source of Thiamine (Vitamin B_1)

NO. 3 in a series which summarize the conclusions about canned foods reached by authorities in nutrition research.

Thiamine, the anti-neuritic vitamin, is perhaps the best known member of the B complex. It promotes growth, is essential in carbohydrate utilization, and helps maintain normal appetite and proper intestinal function. (1)

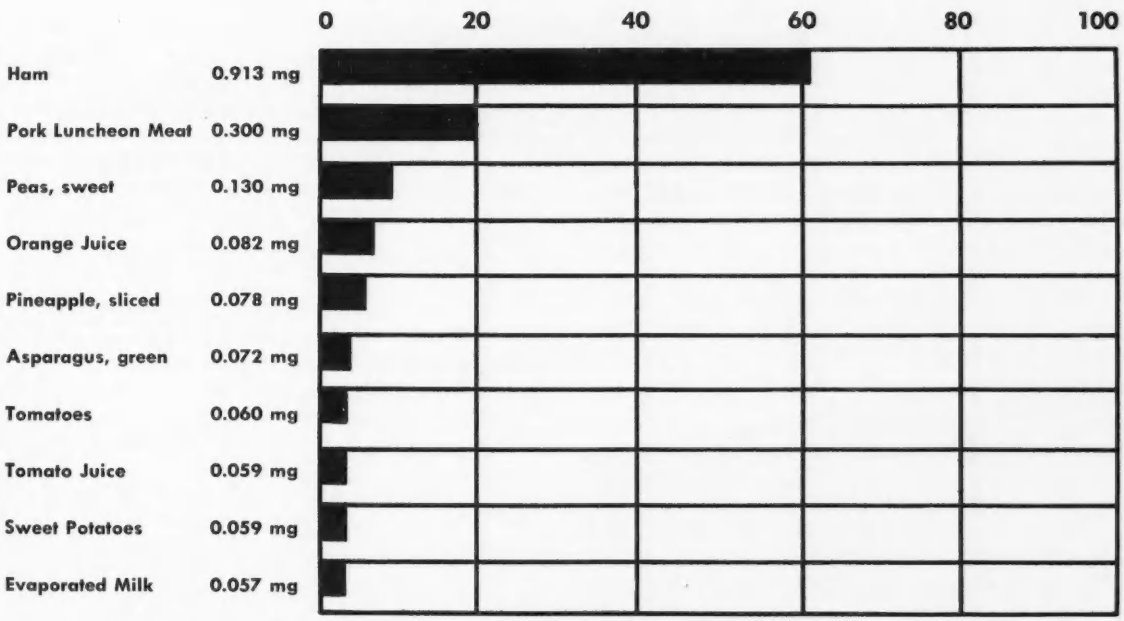
Only a few foods can be classified as rich sources of thiamine; they include peas, beans, oatmeal, whole wheat, lean pork, and peanuts. Fruits, vegetables, and milk, however, must not be overlooked since they may contribute appreciable amounts of thiamine, although the amount per unit of weight is relatively low. (2)

Since thiamine is derived from a number of foods, each of which contribute a small amount of this essential nutrient, the wide variety of foods made available throughout the year by commercial canning will assist in the acquisition of an adequate supply of Vitamin B_1.

Canned foods which contribute 5% or more of the Recommended Daily Allowance include pork luncheon meat, peas, orange juice, sliced pineapple, and green asparagus. (3)

Percentage of Recommended Daily Allowance* in 4-oz. (113 grams) Serving (3)

(Based on analysis of the entire can contents)



**Percentage based on Recommended Daily Allowance—1.5 mg. for moderately active male—National Research Council.*

(1) 1943. Chemistry of Food and Nutrition. H. C. Sherman. Page 355. MacMillan, New York.

(2) 1943. Handbook of Nutrition, A. M. A. Council on Foods and Nutrition. Page 215. American Medical Association, Chicago.

(3) 1947. The Canned Food Reference Manual. American Can Company. Pages 247-48. Rogers-Kellogg-Stillson, New York.

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The Seal of Acceptance denotes that this advertisement has been reviewed by the Council on Foods and Nutrition of the American Medical Association and has been accepted by them.

essential foods are and the amounts that a child should eat to insure adequate intake of all the known nutrients. This fragmentary, unrelated nutritional knowledge has been responsible for much forced feeding. When mothers hear that certain foods are essential to their children's health, they worry if the prescribed amount is not eaten. As soon as a child is forced to eat, he not only rebels against the food in question but may also be conditioned against all foods, against mealtime, and all associated matters. This hostility toward food and toward the parents may then be carried over to the age when he can do as he pleases. The chances are that when he arrives at that age, he will refuse all foods that he was repeatedly reminded during his pre-school age were good for him. If this happens, our early training has been worse than useless, more destructive than constructive.

It follows then that, together with instruction on food essentials, a mother needs sound information on how and why certain eating habits are formed. She needs to know that putting the proper foods on her table at every meal eliminates the need for much nagging and remarks such as, "eat this, it's good for you." Likewise, a table set with only nutritious food does not tax a child's judgment too much before he is ready to use it. When only nutritious foods appear on a table, a child can be allowed to choose his food without dictation from his parents, thus eliminating the feeling of urgency to eat. If no pressure is applied, he will ask for the vegetables or other food his parents are eating with obvious relish. The experiment of Dr. Clara Davis (3), contrary to some thinking, can be carried out on a small scale at any family table, if the parents themselves are willing to eat a high percentage of basic food which would be to their advantage as well as to the child's.

To promote and maintain good eating habits, parents should avoid letting children know they are worried or concerned about what the children eat. As soon as a child is conscious of his parents' anxiety, he has a potent weapon. All he has to do is not to eat, and they will promise him his wildest desires if he conforms with their wishes. This being the case, anyone can deduce that any attention given to children for not eating is a practice that must be discontinued. When this fact is accepted and followed out in every detail, parents have a working tool that will result in improvement of the most serious non-eating problem.

TECHNIQUES TO AVOID

There are a vast number of common practices that parents are addicted to which must immediately be ruled out if attention for poor eating is to be stopped. Here are a few of the techniques to be avoided:

(a) Forcing the child to sit at the table until the plate is emptied.

(b) A promise of dessert only if the plate is emptied.

(c) Bringing back left-over food in the same plate for another meal.

(d) Setting the alarm clock to time the child.

(e) Eating for grandma, grandpa, and so on, or a bite for each ancestor.

(f) Talking during meal time about vitamins and other nutrients that certain foods contain.

(g) Saying, "it's good for you" or "it'll make you grow," or "it'll make curly hair," and so on.

(h) Comparison with another sibling who eats more and is younger or older or fatter.

(i) Remarks after a meal, such as "You didn't eat your dinner, so you can't have a lunch," or "See, didn't I tell you you'd be hungry if you didn't eat your dinner?"

Perhaps the greatest stumbling block in the way to good eating habits is the constant table talk about likes, dislikes, food values, idiosyncrasies of various members, remarks of adults about children's habits in their presence, too much recognition for poor habits and too little for good behavior. There is too much "food consciousness' of a detrimental sort.

EDUCATING PARENTS

It is necessary to go into great detail in discussing the change of eating habits with parents. In helping mothers with difficult eating problems, the fathers' cooperation is enlisted first. Parents must cooperate on a common problem. Differences create conflict in the child and contribute to disintegration of the child's personality. Both parents may come to the Habit Clinic for a joint conference with the psychiatrist if they can arrange it.

It is suggested that they remove all attention for not eating. The child comes to the table or not, as he chooses. If he does not choose to come, nothing is said, no attention is given by word, manner, gesture, or otherwise. If he chooses to come to the table, he is not asked what he wants, for that would give him an opening for saying "no" or "nothing." This negative response can be forestalled by eliminating certain questions that elicit such a response. If he asks for food, he can be told to help himself (if he is old enough), with the instruction that he take no more than he can eat. This instruction has the effect of taking emphasis off the importance of eating. Such remarks as, "don't take too much," or "that is all we have," will also remove emphasis and thus have the effect of creating an eagerness for the food. An empty plate and glass at his place (instead of a well-filled plate) will remove the impression of anxiety on the parent's part in the mind of the child. The parents' aim should be to develop an eagerness on the part of the child for food. Coaxing and urging or even talking about food on the part of the parents should be taboo, for it leads to non-interest in food in the child.

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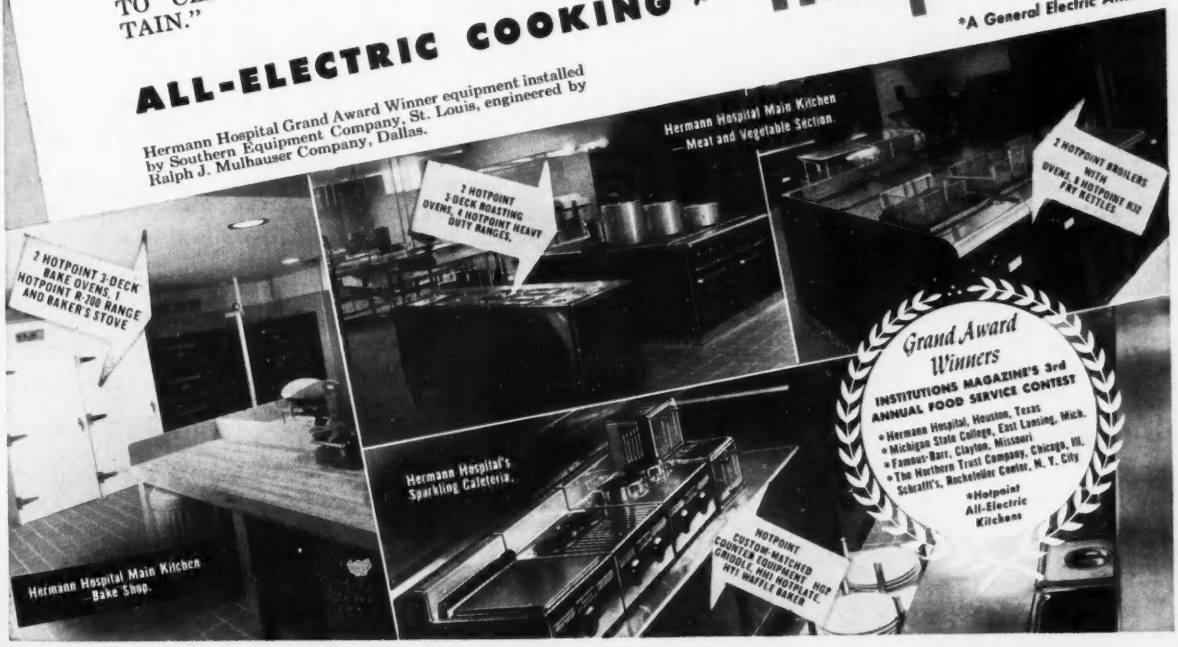
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When the meal is over whether the child has eaten or not, the table is to be cleared without a word and the dishes washed. Instead of putting emphasis on health, put it on orderliness which in turn leads to health and good behavior—two of our objectives. It won't be long after the meal is over before Junior will want something to eat. This is a strategic point in the rehabilitation program. The uninstructed mother is apt to say, "See, you didn't eat breakfast! Now you are hungry! Didn't I tell you that would happen?" This remark gives attention for *not eating* and therefore is inappropriate. We suggest that the mother say pleasantly, "We eat only when the table is set. It won't be long before dinner." The idea is not one of punishment but of guiding the child into acceptable behavior for his own future happiness. Consistency and unanimity on the part of both parents for a few days will show Junior that the old technique is no longer effective, and being a bright youngster he will stop using that method. But, he may find another kind of behavior in another area which is equally unacceptable if the parents fail to substitute wholesome attention for the attention taken away from him for poor eating habits. He needs sufficient attention when well behaved to prevent him from striving for attention through annoying behavior.

It is very important for parents to be convinced that for a child to miss a few meals will not be harmful to him, or they will feel brutal if they carry out this procedure. They must be convinced that there is one of two alternatives open to them. First, let the child go through life a capricious, finicky, childish eater, or, second, be firm for a few days and help him grow into more mature ways of behaving at the table. It is our responsibility as public health workers to help parents see that the child's adult behavior is apt to be very similar to patterns established in the pre-school years and that unless something is done to change unacceptable behavior in young children, they will not "outgrow it."

EDUCATING THE NURSES

Running concurrently with the Habit Clinic conferences with parents is an educational program in the Nurses' Division. All the case histories of children seen in the clinic are discussed before the nurses by the psychiatrist who tells the causes of the behavior and explains the suggestions given to the parents for correction. Many of the concepts and techniques of child psychiatry are brought out and discussed in these conferences. Because all instruction is done in conjunction with cases that public health nurses have themselves discovered, there is great motivation to learn on the part of the nurses. Although behavior problems of pre-school children and their causes have much similarity, which necessitates much repetition in the case conferences, we consider this a distinct advantage because frequent repetition is needed for learning in the area of behavior.

This educational program among public health nurses reaches out into every home in the city and constitutes a psychologic approach to the matter of nutrition instruction of lay people. Public health nurses in their district visit nearly every family for one reason or another. Among the various types of calls are those in the interest of pre-natal, post-natal, and child welfare problems. These really constitute an important group in the area of prevention, for the nurses can discuss with people at such strategic times ways to prevent poor eating habits in children before they have been formed. They can help to relieve anxiety about the baby's food by telling how simple a process eating and habit forming are when managed with some understanding of the concepts of mental hygiene. Besides the pre-natal visits to stress better health formation, nurses visit every mother having either a new born baby and/or other pre-school children. With their knowledge obtained from discussion of hundreds of behavior problems, nurses are in a more strategic position to teach the importance of early positive conditioning toward food and how it can be accomplished. They can help to prevent the hostilities about food which carry over into the adult pattern.

Much of the poor nutritional status of our nation is caused by poor attitudes about food on the part of all age groups. These attitudes determine food selection, economy, extravagances, and food purchases. It is doubtful whether sufficient income, adequate knowledge of food values, or ability to prepare foods well would be sufficient alone to insure better nutrition for the American people. But emotional maturity among a greater part of the adult population resulting from a knowledge of mental hygiene concepts, such as early favorable conditioning toward food, would create better attitudes, which in turn would insure better use of money and knowledge and thus contribute to the improvement of the nutritional status of the nation.

When nutritionists and psychiatrists pool their contributions to approach this common problem, problems in the area of nutrition will be overcome.

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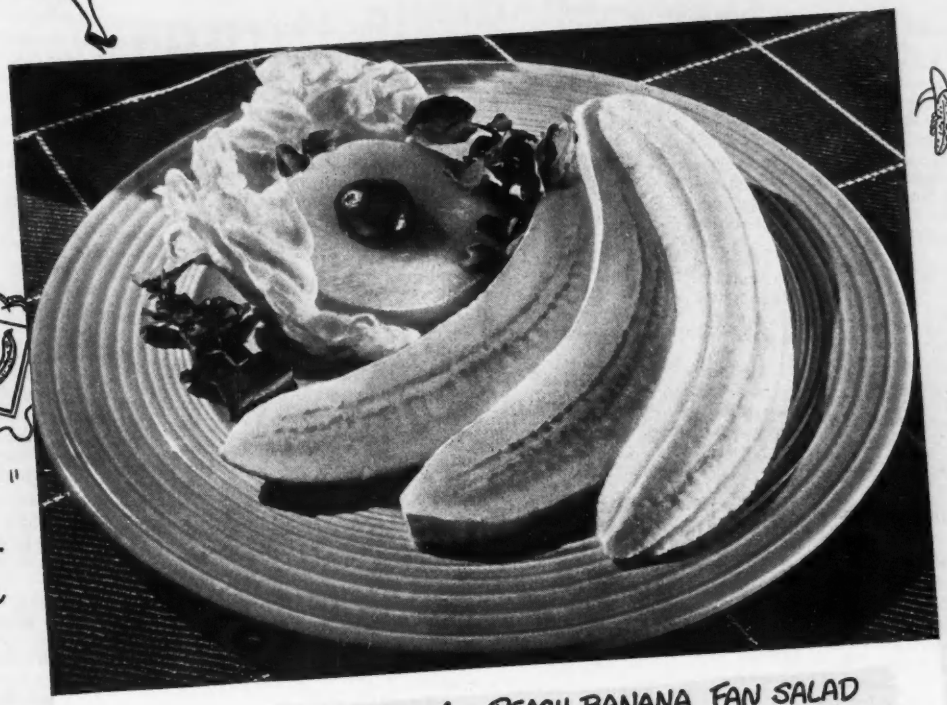
(2) SHAFFER, L. F.: The Psychology of Adjustment. Boston: Houghton Mifflin Co., 1936.
(3) DAVIS, C. M.: Self-selection of diet by newly weaned infants. Am. J. Dis. Child. 36: 651, 1928.

According to the 1949 Statistics and Directory issue of *Hospitals*, the average cost to care for a patient one day in a general hospital in 1948 was $13.09, as compared with $8.95 in 1945.

CHIQUITA BANANA SAYS:

A pleasant tray surprise
PEACH BANANA FAN SALAD



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Look what you get—
Fruit sugars
Vitamins
Minerals

For Salads choose bananas flecked with brown

How to make PEACH BANANA FAN SALAD

(1 Large individual serving)

½ peach
Lettuce
Berry or cherry
1 ripe banana
Watercress or parsley

Place peach half into a crisp lettuce leaf and arrange at back of salad plate. Garnish with berry. Peel and cut banana lengthwise into 3 slices and place across front of salad plate. Spread slices open to resemble a fan. Garnish with crisp watercress or parsley.

Serve with a sweet or tart dressing.

USE FULLY RIPE BANANAS...YELLOW PEEL FLECKED WITH BROWN

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For a cool, nutritious drink — Banana Milk shake

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Book Reviews

Growing Through School Lunch Experiences. Prepared at Florida State University. Tallahassee, Florida: State Department of Education Bulletin No. 33A, 1948. Paper. Pp. 177. Price 85 cents.

There is increasing recognition of the importance of the school lunch program, and many teachers and nutritionists are anxious to help children improve their food habits. However, in the past, there has been comparatively little material to guide those who were working in this field. This bulletin from Florida fills a need and is particularly valuable because it has been prepared by a group of educators with the assistance of school lunch personnel and other specialists.

The four chapters deal with "Basic Considerations," "The School Lunch in the Instructional Program," "Behind the Scenes," and "Evaluation." The material is well organized, factual, and practical. Case studies of good and poor situations are given, and clever sketches illustrate the bulletin which is well printed.

Particular emphasis is given to Florida's needs and to the use of Florida-grown foods, but the principles presented and the examples and procedures suggested apply in any situation. This bulletin is highly recommended to all who work with children.—*E. Neige Todhunter, Ph.D., Head, Department of Foods and Nutrition, University of Alabama, Tuscaloosa.*

Mayo Clinic Diet Manual. By the Committee on Dietetics of the Mayo Clinic. Philadelphia: W. B. Saunders Company, 1949. Spiral bound, paper. Pp. 329. Price $4.

While the chief function of most diet manuals is to serve the professional staff of a specific hospital, it is nevertheless a laudable accomplishment when a Committee on Dietetics of so well-known a medical center as the Mayo Clinic publishes its diet manual in book form so that a much wider audience can be reached. This manual offers a complete and authoritative guide for the dietitian, nurse, and physician in the planning of therapeutic diets. The diets are presented as programs for specific conditions and consequently are used with ease by the physician and nurse who may not have great facility in adapting general principles to particular diseases. On the other hand, there is the possibility that this manner of presentation might tend to restrict the usefulness of a diet to a given disorder, even though unintentional.

For each dietary program the following information is given: the composition of the diet for protein, fat, carbohydrate, calories, calcium, iron, vitamin A, thiamine, riboflavin, niacin, and ascorbic acid; notations on adequacy and general description; foods included and excluded; and meal patterns, together with sample menus and specified weights and household measures. In addition to the routine diets and the usual modifications required in everyday dietary experience, this manual outlines complete programs for sprue, hypercalcemia (low-calcium diet), hyperlipoidemia (low-animal-fat, low-cholesterol diet) celiac disease, and epilepsy. This provides a valuable reference for the dietitian who only occasionally encounters orders for such diets. A considerable portion of the manual is devoted to normal and therapeutic diets for infants and children. Also included as aids in diagnosis are the low-calcium test diet; the high-potassium, low-chloride test diet; the high-purine test diet; and the test diet for steatorrhea and for nitrogen excretion.

The up-to-date trends in diet therapy are reflected in such diets as the simplified, five-stage program for gastric ulcers; a diet of normal fat content for gallbladder disease; a high-protein, high-carbohydrate diet for liver disease with fat kept as low as compatible with maximum palatability and protein content; diets for cardio-renal-vascular disease at sodium levels ranging from 0.2 to 1.0 gm. or more, and protein levels varying from 40 to 130 gm. It is doubtful whether a separate dietary program is indicated for iron deficiency anemia (high-iron diet) in view of the fact that even so-called "high-iron" diets are at best only twice as high as normal in iron level and are not to be considered of comparative therapeutic value with iron salts. The elimination of this type of program, for example, helps to simplify dietary practice as well as to re-emphasize the importance of the normal diet.

Much useful tabular material is included. Lists of foods high in calcium, cholesterol, iron, oxalic acid, sodium, and acidity or alkalinity are given together with a table of food composition, height-weight tables, and standard diabetic diets. The text of the book is printed on one side of the sheet only so that the user's notations may be readily inserted. This book can be highly recommended to the physician, nurse, and dietitian.—*Corinne H. Robinson, Lecturer in Nutrition, Temple University School of Medicine, Philadelphia.*

The Frozen Food Cook Book. By Jean I. Simpson and Demetria M. Taylor. New York: Simon and Schuster, 1948. Cloth. Pp. 493. Price $2.95.

With the increased use of frozen foods, freezer locker plants, and home freezers, a cook book such as this fills a great need. The Frozen Food Foundation gave technical assistance and cooperation to these widely known authors.

Section One is devoted to a discussion of the advantages of frozen foods. The second chapter is of considerable interest, since it gives some fine pointers on planning menus using the Basic Seven.

"Cooking with Frozen Foods" is the title of the second section. Here are chapters of clear and precise recipes for the use of meat, poultry, fish, vegetables, fruits, prepared foods, and ice cream. One chapter, badly needed by homemakers who are also employed, deals with the subject of pressure cooking of frozen foods still in a frozen state.

Frequently, an otherwise adequate cook book stubs its toe on sections written on weight control. In this book, however, one finds in Section Three interesting menus and sound suggestions about weight reduction. It also includes such topics of "Menus for Holidays and Parties," "Cooking Outdoors," and "When Men Cook."

Home freezers—their use and care—are discussed in Section Four. With this as a preface, Section Five gives detailed instructions on preparation and freezing of all kinds of foods, prepared meals, baked goods, and many specialties.

In these days when labor and fresh food costs are more than the purchase price of frozen foods, this volume may be a great help to those who supervise food services.—*Virginia Monahan Bayles, Instructor in Nutrition and Dietetics, University of Denver School of Nursing.*

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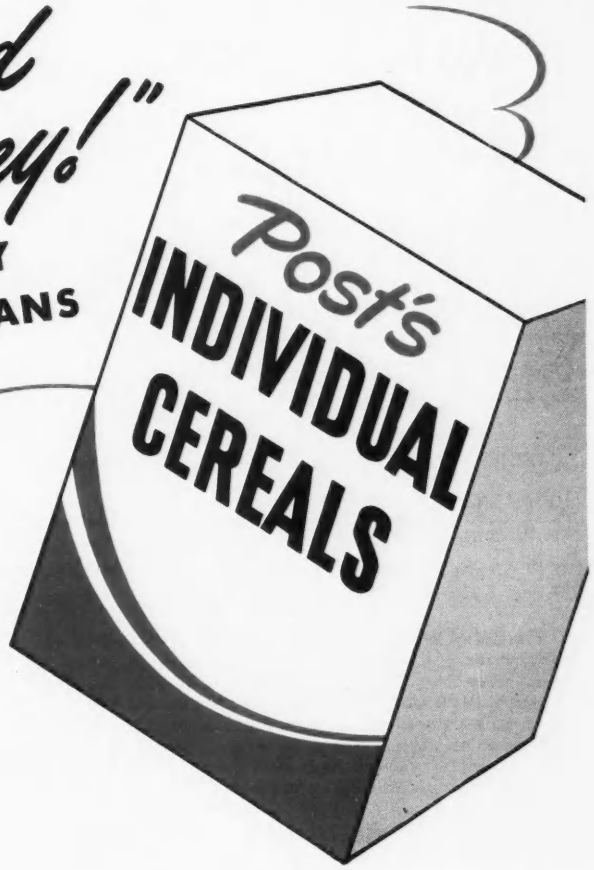

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Current Literature

Contributed by Janette C. Carlsen and Ethel M. Miller, The Johns Hopkins Hospital; Janet Engebretsen, Veterans Administration Hospital, Hines, Illinois; Mrs. Quindara Oliver Dodge, Women's Educational and Industrial Union, Boston; and the Journal staff

AMERICAN JOURNAL OF DISEASES OF CHILDREN

Vol. 77, April, 1949

Amino acid tolerance tests in children. H. Anfanger and R. M. Heavenrich.—p. 425.

Vol. 77, May, 1949

*Vitamin A absorption in the newborn. A. E. Sobel and L. Besman.—p. 576.

Vitamin A in Newborns. A study was conducted to determine comparisons of vitamin A absorption in the newborn and in older children, as well as to determine the rates of absorption when vitamin A was in aqueous and oily solutions. It was observed that in both the newborn and adults, absorption of vitamin A was better in aqueous dispersion. Newborn infants showed diminished absorption of vitamin A as compared to older children and adults.

AMERICAN JOURNAL OF PUBLIC HEALTH

Vol. May, 1949

*Diabetes control in a local health department. H. L. C. Wilkerson and M. J. Ford.—p. 607.

*Nutrition course for students of public health. J. J. Hanlon and A. M. Beeuwkes.—p. 619.

*Training physicians in public health nutrition. F. J. Stare.—p. 624.

Diabetes Control in a Local Health Department. Diabetes, one of the chronic diseases which has long been neglected, should have a place in a local health department program, and diabetes control should be integrated with other chronic disease control programs where such programs exist. The objectives of the diabetes control program are primarily case finding (early detection), referral to practicing physicians for treatment, and education of the public in general and of the diabetic patient in particular. The procedures used in screening for diabetes and in the various phases of the diabetes educational program are described. Topics for classroom instruction include: the nature of diabetes; insulin—its source and action; insulin reaction—its avoidance; nutrition and diabetes; diet—carbohydrates, proteins, fats; complications—their prevention; infections, sickness, personal hygiene; sugar in blood and urine; urine testing methods; blood sugar analysis; travel problem in diabetes; selection and preparation of menus and lunches; and a discussion period. This instruction is given by the unit physician, the public health nurse, and the nutritionist.

Nutrition Course for Students of Public Health. This article presents a discussion of the requirements and content of a nutrition course for students of public health. Students are advised to learn to face squarely the environmental limitations of each person, each family, each community, and each nation with which they might deal. A study of the many underlying reasons for dietary inadequacy is, therefore, essential. Attention should be given to dietary customs, superstitions, fads, and fallacies; and a study should be made of factors such as economics, climate, soil, and geography which may influence the food supply and nutrition of people. Special consideration should be given to phases of life which present unusual or unique nutritional demands or problems. The periods of pregnancy, infancy, illness, and old age are worthy of particular note. There should also be provided in the course, ample time for discussion of the place that nutrition activities have and might occupy in the total general public health program. School and industrial lunch programs which reach back into the home should be treated not only as feeding enterprises but also as educational enterprises. It is the intention that the course described will not make nutrition specialists of the students, but provide each with a broad understanding of the relation of food to total health and social welfare, as well as establish a framework upon which may be added new developments in the field of nutrition.

Training Physicians in Public Health Nutrition. Nutrition is such a broad and important subject in health that all health personnel should have some awareness of the subject. This applies particularly to the physician in public health work. Professional training in nutrition is important and, depending upon the profession, should include some or all of the following: (a) basic and historical information on the science of nutrition, in perspective to the other sciences; (b) applications of nutrition to medical and health problems; (c) an account of recent research in nutrition as it applies to public health with some evaluation of present and future problems; and (d) the economic, social, and psychologic aspects of nutrition. Professional training in nutrition should be given by each of the following general procedures: (a) Instruction in nutrition should be given in each of the years of professional schooling. (b) Most of this instruction should be incorporated in standard courses of the curriculum. (c) Special courses in public health nutrition should be given in schools of public health. A suggested curriculum for medical schools including nutrition with related subjects is presented.

THE JOURNAL OF BIOLOGICAL CHEMISTRY

Vol. 179, May, 1949

*The role of insulin in the metabolism of amino acids. W. D. Lotspeich.—p. 175.

Insulin in Amino Acid Metabolism. The effect of insulin on the blood concentration of the ten essential amino acids has been studied in the normal fasting dog. It has been shown that there is a correlation between the proportions of each amino acid removed from blood after administration of insulin and the proportions of each amino acid in a representative body protein, skeletal muscle. It has been suggested on the basis of this observation that insulin promotes the synthesis of protein for circulating amino acids. The interpretation

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is in keeping with recent evidence that points to an intimate relationship between insulin and the anterior pituitary gland in both protein and carbohydrate metabolism.

THE JOURNAL OF NUTRITION

Vol. 37, April, 1949

*The utilization of nicotinic acid by pregnant women. E. I. Frazier, T. Porter, and M. J. Humphrey.—p. 393.
*The determination of early thiamine-deficient states by estimation of blood lactic and pyruvic acids after glucose administration and exercise. M. K. Horwitt and O. Kreisler.—p. 411.
Oral manifestations in rats fed synthetic diets deficient in pantothenic acid and biotin. I. Methods and general gross symptoms. D. E. Ziskin, M. Karshan, G. Stein, and D. A. Dragiff.—p. 457.
The effects of various levels of thiamine and riboflavin intake upon the utilization of casein, supplemented with methionine. H. L. Mayfield and M. T. Hedrick.—p. 475.
*The effect of canning, roasting and corning on the biological value of the proteins of western beef, finished on either grass or grain. H. L. Mayfield and M. T. Hedrick.—p. 487.
*The sulfur amino acid requirement of the infant. A. A. Albanese, L. E. Holt, V. I. Davis, S. E. Synderman, M. Lein, and E. M. Smetack.—p. 511.

Nicotinic Acid in Pregnancy. It has been suggested that the maternal body demands more nicotinic acid during the reproductive cycle. Consequently, this investigation was undertaken to study the relation of the intake of nicotinic acid to the urinary excretion of some of its metabolites. Three groups of women were selected: (a) seven healthy young primigravidae during the last five months of pregnancy, (b) forty-two clinic patients selected at random, and (c) twelve non-pregnant women. There was a statistically significant increase in the excretion of N^1-methylnicotinamide by pregnant women in the last trimester of pregnancy. The significance of this increase is discussed.

Test for Thiamine Deficiency. Thirty-six human subjects receiving diets of known low content of thiamine were studied from the standpoint of the relationship of the levels of lactic and pyruvic acid of the blood to the degree of thiamine deficiency. The normal relationship between blood glucose levels and those of lactic and pyruvic acid was investigated, and the necessity demonstrated for considering this relationship in evaluating levels of blood lactate and pyruvate. In the fasting state and in the absence of exercise, there was no consistent rise in the levels of lactic acid and pyruvic acid in mild degrees of thiamine deficiency. The basal levels were elevated in some cases of more severe thiamine deficiency but, even then, only after pronounced clinical signs of pathology were apparent. The elevation of the lactate and pyruvate values of the blood which followed a combined "metabolic load" composed of ingestion of glucose and mild exercise was found to give more useful data than were obtained either after glucose ingestion alone or after exercise alone. Under the conditions obtained in the experiments here reported, the blood levels of lactic and pyruvic acid observed under this double "metabolic load" of glucose ingestion and exercise proved to be a means of diagnosing early and mild degrees of thiamine deficiency when these levels were correlated with the glucose level of the blood. The use of a method to pick out thiamine-deficient individuals from population groups is also illustrated.

Effect of Processing on Beef Protein. The effect of varying the type of feed and the subsequent changes produced by canning, roasting, and corning on the digestibility and biologic value of beef protein were studied. The nitrogen balance technique with weanling rats was used for this investigation. Digestibility values were significantly lowered by the canning process, and biologic values varied. Neither roasting nor corning changed the biologic value or digestibility. Furthermore, no differences were found in the biologic value and digestibility of the meat proteins from grain-fed and grass-fed animals.

Sulphur Amino Acid Needs of the Infant. The sulphur amino acid requirements of five normal male infants were studied. In three infants who received no cystine supplements, the nitrogen retention and body weight gains were restored to normal levels by an intake of 85 mg. *l*-methionine per kilogram of body weight. In two infants who received a 1 per cent *l*-cystine supplement, the nitrogen retention and weight change were restored to normal values by an intake of 65 mg. *l*-methionine per kilogram of body weight. The implications of these findings are discussed in reference to the nutritional virtues of human and cow's milk.

THE NEW ENGLAND JOURNAL OF MEDICINE

Vol. 240, May 12, 1949

The effect of oral therapy with cobaltous chloride on the blood of patients suffering with chronic suppurative infection. J. C. Robinson, G. W. James, and R. M. Kark.—p. 749.
*Erythropoietic effect of cobalt in patients with or without anemia. L. Berk, J. H. Burchenal, and W. B. Castle.—p. 754.

Vol. 240, May 19, 1949

*A comparison of pteroylglutamic acid and liver extract maintenance therapy in sprue. H. J. Fox.—p. 801.

Erythropoietic Effect of Cobalt. The daily administration of 30 mg. of cobaltous chloride to seventeen patients without anemia produced slight reticulocyte responses within a week. Cobaltous chloride given for more than four weeks to twenty patients with various types of anemia refractory to other forms of therapy resulted in reticulocyte response and rises in red cell, hemoglobin, and hematocrit values in seven patients. The possibility that the erythropoietic action of the drug depends upon a fundamental alteration of tissue respiration indicates the need for further studies of chronic toxicity in animals, before its administration to human beings for any period of time.

Folic Acid Therapy in Sprue. Observations on the effects of folic acid given for at least a year to a group of sprue patients are presented. Folic acid has a beneficial effect in general, but does not produce complete remission in all types of cases. The majority of patients gained weight and had less diarrhea. Blood values were not quite so well maintained as with liver extract. Despite this fact all patients experienced clinical benefits that they had not enjoyed with iver therapy.

HOSPITALS

Vol. 23, May, 1949

*What one hospital did about breakage and budgets. E. Weisberger.—p. 77.
*Eliminating a problem in the disposal of garbage. M. H. Woodside.—p. 71.

Dish Breakage and Budgets. The problem of dish breakage is discussed and possible solutions are suggested. By following an intensive campaign to prevent needless loss and breakage, Cedars of Lebanon Hospital in Los Angeles has been able to reduce the monthly cost of dish replacements 64 per cent. Patients' dinner trays, with the price of each dish clearly marked, are exhibited in the dish room, as an effective educational device for reducing replacements costs. Other suggested factors to consider in fighting breakage are: (a) vigilance on the part of the head dishwasher, who supervises both machines and workers; (b) a concrete demonstration of the correct methods of doing the work when individual employees are at fault; and (c) constant reminders of the value of the property handled.

Disposal of Garbage. A plea is entered for the installation of garbage disposal units in various ward kitchens in the hospitals thereby decentralizing garbage disposal. Information is contained concerning the pollution of food

Warning!

1 That red flag is your warning. You *know* when lipstick stays on through the dishwasher that your dishwashing is inefficient. But even without visible marks, washing film may be present. Washing film holds stale odors, bits of food . . . and germs.

2 Strong alkalies can remove lipstick but they can't cut washing film. That means that *with* lipstick dishes are *obviously* dirty . . . *without it*, they still may be fouled by washing film.

3 Use Calgonite* to remove both lipstick and washing film in your one dishwashing operation. When used as directed the Calgon in Calgonite *eliminates* washing film . . . *softens* water . . . stimulates alkaline cleansing . . . prevents *all* scum and scale on the dishes *and* the machine!

4 Test Calgonite . . . compare it with any other dishwashing compound. Test it not on cost-per-pound but on *cost-per-clean-dish*. Write for free dishwashing instructions. Calgon, Inc., Hagan Building, Pittsburgh 30, Pa.

CALGONITE for mechanical dishwashing. CALADE* for hand dishwashing. CALGOLAC* the sudsless cleanser for bar glassware. NOCA* all-purpose kitchen cleanser for hand use.

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leftovers after they have come in contact with patients and ward personnel. It generally is assumed that ½ to 1 lb. of garbage is produced per capita per day; therefore, the small disposal unit would be sufficient. It is debatable whether a large central grinder is more desirable than several small ones in the main kitchen. The opinion is expressed that the method of garbage disposal described here will not overload the sewage lines. However, such addition of ground garbage to a community sewage system would place an extra load on the facilities of the disposal plant.

PERSONNEL JOURNAL

Vol. 27, April, 1949

*A personnel program that failed.—p. 414.
*How to build a training program. L. F. Lindahl.—p. 417.
*Selection methods for part-time workers. F. A. Fredenburg.—p. 426.

Vol. 28, May, 1949

*Promoting courtesy among employees. H. K. Witzky.—p. 9.

Personnel Program. Employees talk about their employee benefits, accident and health insurance, pension plans, seniority rights, internal promotion, and parties but forget about the high turnover rate, high absenteeism, and employee dissatisfaction. In one organization a questionnaire was developed concerning all these points and distributed to the employees to fill out. Some of the suggestions made by the employees were worth while, but many were impractical. The plan as a whole was a failure but showed points where it could be made more effective another time. These included the employment of an outside consultant to handle the questionnaire, the need to give employees proof of the origin of the questionnaire from the personnel office, the distribution and collection of the questionnaire in a confidential manner, and an announcement of the results. All of this should be followed by improvements growing out of the questionnaire.

Training Program. An outline of a successful training program for new employees is presented. Essential points include the identification of training needs, analyzing these needs, and organizing for training and supervising.

Part-Time Workers. High school students as part-time workers in industry require screening of applicants by age, maturity, appearance, dress, speech, and general impression. Both tests and references have been discarded as being of little value in determining youthful potentialities. A group panel of four interviewers, each interviewer independently scoring each applicant on appearance, dress, speech, general impression, and references has proved the most effective means of selecting students with maximum abilities, since the composite score of all-round effectiveness growing out of this panel proved highly reliable.

Courteous Employees. In an effort to effect a return by employees of service industries to pre-war standards of courtesy, a New York City hotel worked out a four-point program which demonstrated marked improvements in employee attitudes resulting in improved internal and external public relations. Essentials of the program consisted of arousing interest through effective employee communications mediums; talks by personnel department executives; presentation of a courtesy film, "Double Horseshoes," and an effective follow-up through membership in the Double Horseshoes club; weekly reminders; contest letters; and window displays.

WHAT'S NEW IN HOME ECONOMICS

Vol. 13, April, 1949

Dairy products for the nutrition-wise.—p. 41.
Frozen desserts for the menu-wise.—p. 44.
* Home economics careers in the making. I. S. Willson.—p. 65.

Vol. 15, May, 1949

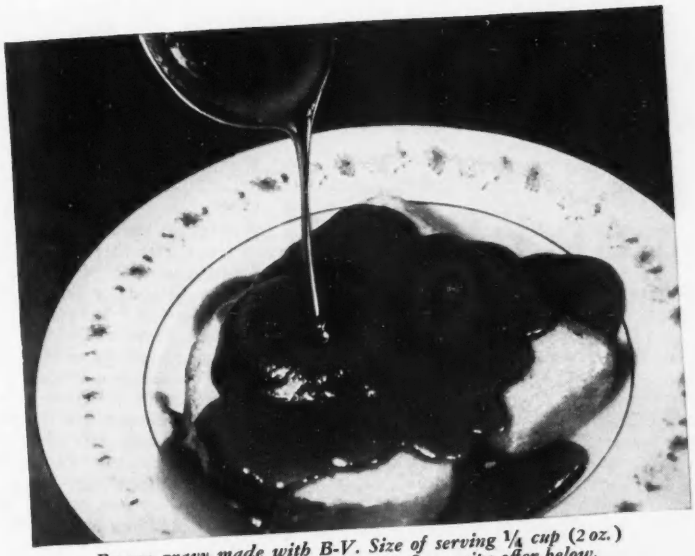
*Understanding quick method cakes. E. A. Wood.—p. 40.
Frozen orange juice concentrate is news.—p. 88.

Home Economics Careers. Miriam Teplit has chosen the career of hospital dietitian. She has chosen hospital dietetics since she is interested in both medicine and in foods. She believes a course in home economics transforms an immature girl into a mature woman ready to take her place in the community, and she values a fifth year internship highly since it provides her with many professional advantages.

Quick-Method Cakes. The development of quick-method cakes was made possible by the additions of mono- and diglycerides to hydrogenated vegetable shortenings. The presence of monoglycerides allows finer and more evenly divided fat particles in the complex emulsion batter and eliminates need for creaming sugar and shortening as less aeration is needed. Since cake success depends on balanced recipes, it is important not to use quick and conventional methods and ingredients interchangeably. Quick-method cakes contain more sugar, liquid, and leavening agent; are more moist; have pinpoint fine, uniform grain and soft melting texture; have better keeping qualities; and the method is more easily taught than the conventional method

Water Deprivation and Efficiency

In experimental situations it has been shown that deprivation of water, rapidly (within a few hours) causes marked deterioration in efficiency. Efficiency is best maintained by insuring replacement of water lost in the sweat, urine, and breath in hot weather conditions by equal intake of fluid. In some industries, such as construction work in hot climates and work in steel mills, some of the personnel may require as much as 20 liters of water a day. From a practical point of view it is important to see that personnel in hot weather have adequate access to cool (not cold or iced) water. Iced water constricts the surface vessels of the body and increases body heat. In industries where sweating is excessive, it is customary to give salt tablets to replace the salt lost in sweat. Since most salt tablets are compressed, they do not dissolve readily in the bowels and they may pass through the intestinal tract unchanged. They may also produce abdominal cramps because they liberate irritant hypertonic saline wherever they settle in the stomach or small bowel. It is far better to train personnel working in hot weather or in conditions of great heat to add quantities of salt from the salt shaker to their food or to drink slightly salinated water.—*From the resumé of the seminar on the Relationship of Nutrition to Work Performance given on July 16, 1948 at Syracuse University, Department of Foods and Nutrition.*



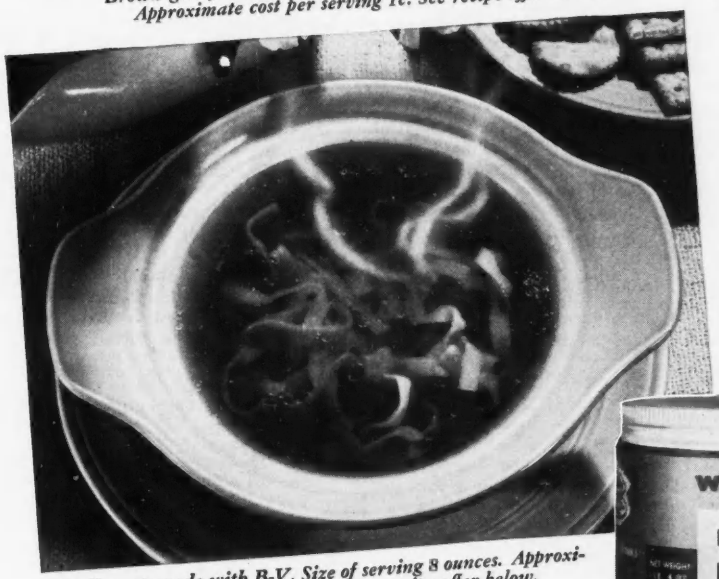
Brown gravy made with B-V. Size of serving 1/4 cup (2 oz.) Approximate cost per serving 1c. See recipe offer below.

Rich, Brown GRAVY

make it by the gallon the quick, fool-proof

B-V WAY

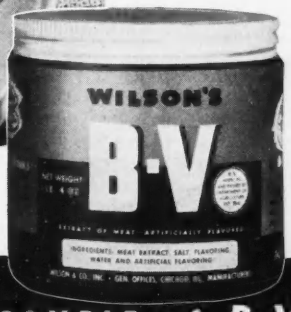
Good, rich meaty brown gravy, smooth as cream, can make a plain meal taste wonderful. And it's easy to have in large quantities, without meat or meat drippings. Just use the simple, never-fail B-V recipe included in the Free Book of B-V recipes offered in coupon below. Send for it now.



Noodle soup made with B-V. Size of serving 8 ounces. Approximate cost per serving 3 cents. See recipe offer below.

Meaty SOUPS

Rich, wholesome soups—soups that are not only delicious to taste but nutritious as well, can be made anytime in any quantity—with B-V meat extract. B-V not only makes a rich meaty soup base—it also makes delicious meat bouillons—quickly and at low cost. Mail coupon below for free sample of B-V and free quantity recipes. Do it now.



The "BIG BOY" JAR

For economical, institutional use, Wilson's B-V is available in the large 20 ounce "Big Boy" Jar. Use it for making large quantities of delicious gravy—for soups, bouillons, hot drinks, etc.—for adding richer meat flavor to casseroles, stews, etc. Order from your Wilson salesman or jobber, or write us.

You just can't *Beat* a Wilson canned *Meat*

Wilson & Co. also pack *canned meats* for institutions. Two popular favorites are a 6 lb. tin of Wilson's Certified Corned Beef and a 5 lb. 12 oz. tin of Wilson's Corned Beef Hash. Wilson's regular line of canned meats in home sizes are also available.

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News Notes

1949 Borden Award. Dr. Kate Daum, Associate Professor, Medical College of the University of Iowa, Iowa City, and Past-President of A.D.A, was named the winner of the 1949 Borden Award for fundamental research in nutrition.

Her studies on the physiological effects of various levels of thiamine intake, reports of which the JOURNAL has recently carried, were the basis for the award, which carries with it an honorarium of $1000. The award was presented at the banquet of the American Home Economics Association in San Francisco on July 1.

New AHEA Officers. At the annual meeting of the American Home Economics Association held in San Francisco in June, the following new officers were elected: President-Elect: Florence Fallgatter, Professor and Head, Home Economics Education Department, Iowa State College, Ames. Miss Fallgatter will succeed Marie Dye as President in 1950. Vice-President: Olga P. Brucher, Dean, School of Home Economics, Rhode Island State College, Kingston; and Recording Secretary: Ruth Bonde, Professor and Chairman, Home Economics Department, Northwestern University, Evanston, Illinois.

Veterans Administration News. Dr. E. Neige Todhunter, Head, Department of Foods and Nutrition, University of Alabama, has accepted an appointment on the Dietetic Advisory Council, Department of Medicine and Surgery, Veterans Administration. She will act in a consultant capacity as educational representative on this council which was established in 1945 and consists of three members representing the fields of administration, diet therapy, and education.

The Dietetic Division of the Department of Medicine and Surgery of Veterans Administration was reorganized following the abolishment of the thirteen Branch Offices and the establishment of Area Offices for supervision of the medical program in Veterans Administration field installations. Dietetic representatives formerly in Branch Offices have been transferred to the Central Office Dietetic Division to participate in this phase of the medical program. Those now located in Central Office include Doris Anne Boyle, Helen Cahill, Frances Kelley, Margaret Rosenmeier, Ruth Spencer, and Violet Wallfred. Those assigned to areas of Medical Supervision are: Grace Covey, Boston; Kathryn McHenry, Washington, D. C.; Maniza Moore, Atlanta; Harriett S. Warmington, Ft. Snelling, St. Paul, Minnesota; Betty I. Bonnett, St. Louis; and Verdi Miller, San Francisco.

Kansas State Expands Graduate Program. Kansas State College, Manhattan, has announced that effective this fall, its Department of Foods and Nutrition will offer work leading to the degree of Doctor of Philosophy.

In 1922, Kansas State presented its first master's degree in foods and nutrition, and 130 women have since been granted their master's degrees in this area. Three of these plan to return in the fall to work toward the Ph.D. degree now offered.

Dietetic Interns Complete Training. On June 29, eight dietetic interns at the *Eastman Kodak Company*, Rochester, New York, completed their training at a ceremony addressed by Perley S. Wilcox, Eastman's Board Chairman. Following Mr. Wilcox' talk, Wintress Dalbey Murray, course director, presented A.D.A. membership pins to: Phyllis M. Bothe, College of Mt. St. Joseph; Bonnie J. Kuehl, University of Idaho; Jean Oliver, Hood College; Lois M. O'Neal, University of Washington; Mary O'Neil, Seton Hill College; Arlene J. Wagner, Pennsylvania State College; Rose Marie Wagner, Pennsylvania State College; and Elizabeth Walker, Miami University. Miss Kuehl was valedictorian for the class.

The graduation dinner for the eight dietetic interns at *Christ Hospital*, Cincinnati, was held at the Terrace Plaza Hotel on May 31. The theme of the occasion was "Hitch Your Wagon to a Star." The speaker for the occasion was Rev. James Otis Young, Superintendent, Cincinnati District of the Methodist Church, who chose as his subject "Life's Imperative." Following this address, diplomas were presented by Louis K. Nippert, President of the Board of Trustees. Later, on June 7, a joint graduation program with the Medical and Nursing Departments, was held at the University of Cincinnati.

The seven dietetic interns who completed training at the *Ohio State University Hospital*, Columbus, in June, were also included in a joint ceremony for medical and surgical interns. At a large banquet, the dietetic interns' certificates were presented by Dr. B. K. Wiseman and their Director, Martha Nelson Lewis.

Test Questions for Student Nurses. The committee for Project #1, 1947–48, of the A.D.A. Professional Education Section has prepared a series of fifty-six situation-type, multiple choice questions suitable for use in testing student nurses on their knowledge of diet therapy and nutrition. A small number of these questions have been dittoed for limited distribution to members. If, when put to the test of use, they prove useful and popular, additional copies will be mimeographed and offered for sale at a nominal charge. The nine situations described in this series are planned to test the student's knowledge of therapeutic diets for overweight, tuberculosis, peptic ulcer, gout, infectious hepatitis, diabetes, and pregnancy, as well as food preparation and the planning of a low-income, adequate diet. Chairman of the committee which worked out these questions is Anne Hurevitz.

***Institutions* Winner.** When the awards for the Third Annual *Institutions* Magazine Food Service Contest were made at the National Restaurant Association Convention, one of the five grand awards was given to Hermann Hospital, Houston, where Margaret Sartor is Director of Dietetics. To meet the demands created by a new addition to Hermann Hospital, the Dietary Department had to be completely replanned, and the installation was completed in February. A description of the new food service facilities is given in the June issue of *Institutions*

Journals Wanted. The supply of the following issues of the JOURNAL has been depleted.

Volume 25
No. 1, January, 1949

Volume 24
No. 9, September, 1948
No. 10, October, 1948
No. 11, November, 1948

Volume 23
No. 2, February, 1947
No. 12, December, 1947

Volume 22
No. 10, October, 1946

Volume 21
No. 1, January, 1945
No. 4, April, 1945
No. 11, November, 1945

Volume 17
No. 2, February, 1941

Volume 15
No. 3, March, 1940

If members of the Association or other readers of the Journal have no further use for these copies, we would appreciate your sending them to the Association office.

does TALK *work for you?*

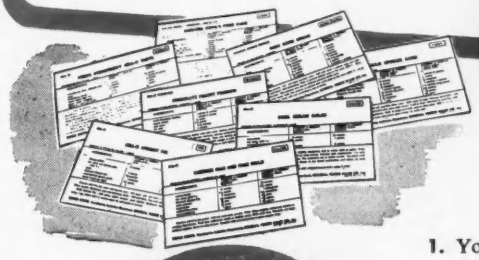
1949 PRIZE WINNER OFFERS TIP TO DIETITIANS:

General Foods Quantity Recipes Save Money and Make People Talk About Your Food

"General Foods Quantity Recipes have won us priceless word-of-mouth advertising," says Mrs. Royce B. Adamson, 1st Prize Winner in General Foods 1949 Merchandising Ideas Contest.

"We use the recipes to make several of our 'specialties.' The results are always outstanding, and more important, always uniform. This means our patrons get their favorite dishes the way they expect them. That adds up to repeat business. We also save money on food. The low-cost entree and dessert recipes help us prepare inexpensive dishes that look and taste exceptionally good."

Mrs. Adamson, owner of the Royce Cafe, Edmond, Oklahoma, has used General Foods Quantity Recipes for more than five years.



KITCHEN EQUIPMENT PRIZES:

Most General Foods Institution Products are packed with coupons redeemable for valuable prizes. Write today for your catalog: General Foods Premium Dept., Battle Creek, Michigan.

Why General Foods Standardized Quantity Recipes Can Help You!

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4. Your General Foods Recipes give careful consideration to seasonal foods, ease of preparation, and other ingredient factors.

Millions of General Foods Quantity Recipe Cards are now in use. For this free service, ask your General Foods man, or write Institution Food Service, General Foods Corporation, 250 Park Ave., New York 17, N. Y.

Errata. The refresher course for Army Reserve Nutrition Officers is being conducted under the auspices of the Nutrition Branch, Office of The Surgeon General, instead of the Office of The Quartermaster General, as the JOURNAL stated in its June issue.

Plentiful Foods. The Department of Agriculture expects the following foods to be plentiful in August:

Fresh fruit and produce

Apples	Pears
Cabbage	Plums
Cantaloupe	Prunes
Lettuce	Tomatoes
Onions	Vegetables, locally grown
Peaches	

Miscellaneous foods

Chickens (broilers, fryers, and hens)	Eggs
Dairy products (processed)	Fish (fresh and frozen)
	Peanut butter

All locally grown vegetables are star items and should be given special stress.

Correction. The editors regret that an error in chronology was recorded in the June issue (p. 484). It has been brought to our attention that when the JOURNAL was founded in 1925, Florence Smith, its first Editor, was connected with St. Marys Hospital, Rochester, Minnesota, rather than with the University of Chicago School of Medicine. Miss Smith was not appointed Associate Professor at the University until 1927.

News of State Associations

Delaware Dietetic Association. The Delaware Dietetic Association has met monthly since November, when reports of the A.D.A. convention in Boston were given. At a special meeting in observance of Diabetes Detection Week in December, Dr. Garfield Duncan, Professor of Medicine, Pennsylvania Hospital, Philadelphia, spoke on "Diet in Diabetes." The regular December meeting was the usual Christmas party. In January, the group heard a representative of Honor Brand, Stockley, and Van Camp Company speak on "Frozen Foods." The following month, Dr. James S. McLaughlin, Medical Director, Allergy Department, Pennsylvania Hospital, Philadelphia, discussed "Allergy and the Diet," while in March, John N. Hatfield, President-Elect of the American Hospital Association, addressed the members on "The Role of the Dietitian in the Present-Day Hospital." A dinner meeting in May was held, with Godfrey Irwin, Wine Institute, New York, as guest speaker. His topic was "Wines and Their Uses in Cookery." At a picnic meeting in June, the following officers for 1949–50 were announced; President, Jane Neal, Wilmington General Hospital; President-Elect, M. Louise McKenney, Alfred I. I. duPont Institute; Vice-President, Carolyn Medill, Friends School; Secretary, Betty Hemenway, Hotel duPont; and Treasurer, Mildred B. West. All are of Wilmington.

Hawaii Dietetic Association. On May 19, the Hawaii Dietetic Association gave a tea at the Home Economics Department, University of Hawaii, in honor of the five students who will be dietetic interns this coming year on the mainland. Prospective dietitians from the local high schools were also invited.

The annual meeting of the Hawaii Association was held on June 7, at which reports of the sections were given and the following officers elected for 1949–50; President, Lorene Kulas, St. Francis Hospital; Vice-President, Mary Lum, Leahi Hospital; Secretary, Ruth Toreson, the Queen's Hospital; and Treasurer, Elsie Boatman, University of Hawaii.

Illinois Dietetic Association. On March 10, dietitians from eleven institutions in *West Central Illinois* met at Moline Public Hospital. During the afternoon, Mae Whitmer, President of the Illinois Dietetic Association, and Lida Jamison, gave reports which were followed by a discussion concerning the organization of a local dietetic association.

The *Central Illinois Dietetic* Association met in Springfield in April at which time Eunice Scott, Memorial Hospital, discussed the work of the Illinois Nutrition Committee, and Rita Devlin, Springfield school cafeteria system, talked on "Employee Training." The group also held a picnic in Jacksonville in July, and plans are underway for a joint meeting in the fall with home economics teachers. Newly elected officers are: President, Ardeth Wick, and Secretary, Vera Tharp.

In April, the *Eastern Illinois Dietetic Association* met at the University of Illinois Union Building. Dr. Janice Smith, Department of Home Economics of the University, talked on "Recent Developments in Nutrition." In May, the meeting was held at the Allerton Park, Monticello.

Kansas Dietetic Association. The officers elected to serve in 1949–50 for the Kansas Dietetic Association are: President, June McIntire, VA Hospital, Wichita; President-Elect, Mary L. Smull, Kansas State College, Manhattan; Vice-President, Mary Louise Chappelle, VA Hospital, Topeka; and Treasurer, Audry Jean Merryfield, VA Hospital, Topeka.

The *Kaw Valley Dietetic Association* met at Junction City in March to hear a representative of the Army Quartermaster Corps discuss the purchasing of food in the Army. For the May meeting, Dymphna Lennon of Sydney, Australia, told of the professional training, status, and duties of dietitians in Australia

Louisiana Dietetic Association. Jane Edison of Baton Rouge has been chosen as this year's recipient of the $100 scholarship award of the Louisiana Dietetic Association. Miss Edison was chosen by a committee to which were submitted the names of outstanding students in foods and nutrition from the universities and colleges of Louisiana. She has been accepted for a dietetic internship at Barnes Hospital, St. Louis.

Montana Dietetic Association. Following the resignations of the elected President, Secretary-Treasurer, and Secretary-Treasurer-Elect, the following new officers have been appointed: President, Marion Kelly, Murray Hospital, Butte, and Secretary-Treasurer, Elizabeth Jordan, Butte.

New Mexico Dietetic Association. On May 11, the New Mexico Dietetic Association met in Albuquerque at the University of New Mexico. The program included: A discussion of the school lunch program by Beulah Swanson, Director of Foods, School Lunch Project; "The Nutrition Program of the State Extension Service" by Dr. Evelyn Blanchard, Nutrition Specialist, Extension Service; "The Health Conditions among Pueblo Indians" by Dr. Evelyn P. Sturgis of the Pueblo Service; "Psychological Patterns Influencing Behavior" by David Benedetti, Professor of Psychology, University of New Mexico.

The banquet, held at the Officers Club, Kirtland Field, was followed by a speech on the "Food Situation in Occupied Japan" by Capt. Ralph Chamberlain, U.S. Air Force, and an Army movie on the Berlin airlift.

New officers elected at this meeting are: President, Doris Barker, University Dining Hall, University of New Mexico; Vice-President, Dorothy Hacker, State Department of Health, Santa Fe; and Secretary-Treasurer, Margaret Geders, VA Hospital, Albuquerque.

North Dakota Dietetic Association. The annual spring meeting of the North Dakota Dietetic Association was held on May 2 in Minot. Dr. W. C. Hunley,

Army Announcements Concerning Personnel

Second Lieutenant Jean E. Davis, R-2550, has been appointed in the Women's Medical Specialist Corps Reserve.

The Department of the Army has released the following official list of names of dietitians in the Women's Medical Specialist Corps who have been separated from service.

Major

Smith, Grace, R-10001, Selmer, Tenn.

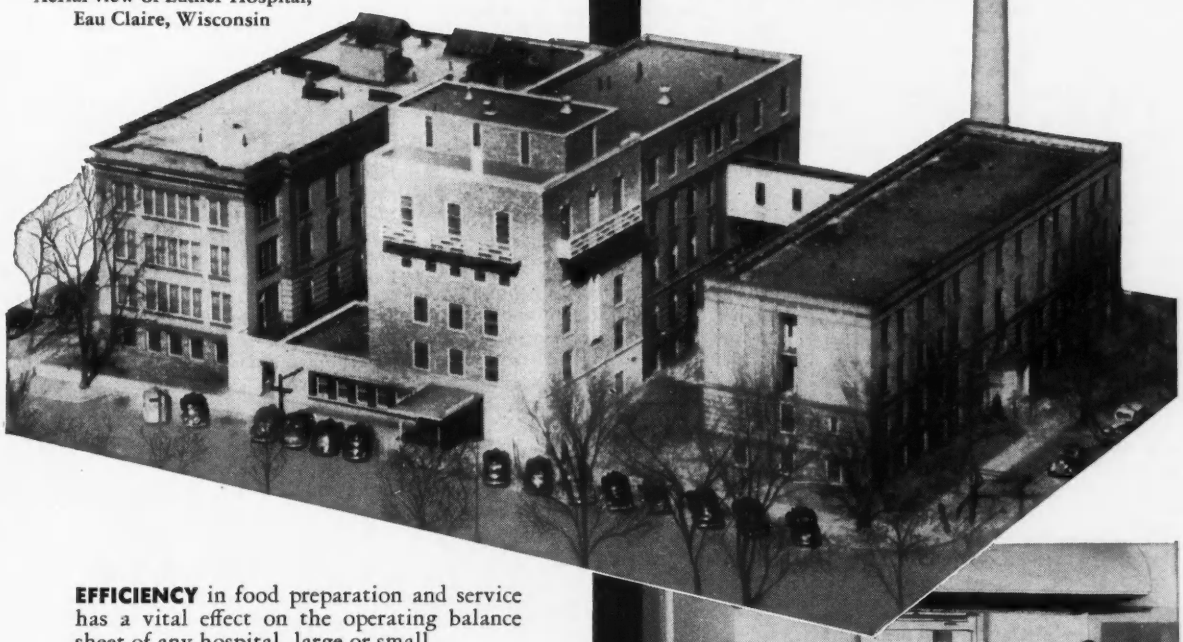
First Lieutenants

Allison, Doris, M., R-10052, 125 W. Ellsworth, Salina, Kans.
Farmer, Melina, A., R-10056, 1009 Highland Ave., Montgomery 7, Ala.
Robbins, Selma F., R-10055, c/o Morris Robbins, 1032 Bedford St., Los Angeles, Calif.

"OUR GAS COOKING EQUIPMENT has contributed materially to increased efficiency in the kitchen."

N. E. Hanshus, Manager
Luther Hospital
Eau Claire, Wisconsin

Aerial view of Luther Hospital, Eau Claire, Wisconsin



EFFICIENCY in food preparation and service has a vital effect on the operating balance sheet of any hospital, large or small.

That's why Mr. Hanshus' further statement emphasizes increased efficiency—"**The ease of temperature control and flexibility of our GAS ranges has contributed to the increased output which was required from our kitchens. In addition, there has been a definite saving in food. The increased cleanliness as compared with our former equipment has been very helpful, particularly in these days of labor shortages.**"

In spite of expanded hospital facilities the flexibility and speed of GAS and the versatility of Gas Cooking Equipment have been more than a match for the constantly increasing food service requirements. Two small compact kitchens, serving the 200-bed hospital, provide an average of 825 meals daily for patients and staff.

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FOR ALL COMMERCIAL COOKING

Saint Joseph's Hospital, Minot, spoke on "Diet Program in Relation to Surgery," and Miss E. Wood, discussed "Teaching in Relation to Dietetic Department and Teaching Techniques."

The new officers of the Association are: President, Betty Hagen, Jamestown General Hospital, and Vice-President, Ernestine Nichols, Devils Lake Hospital.

Ohio Dietetic Association. At the June picnic of the *Dayton Dietetic Association*, the following new officers for 1949–50 were elected: President, Wilma Yost; Vice-President, Martha Simons; Secretary, Evelyn Corvin; and Treasurer, Bernice Hahn.

The *Cincinnati Dietetic Association* had a stimulating meeting in May, when Mary Harmon Riste, Butterworth Hospital, Grand Rapids, Michigan, spoke on "Quality Food in Quantity." She stressed the importance of good menu planning, without which food cannot be good. She pointed out also, that even a good menu can be ruined by poor preparation and poor buying, and suggested the following steps to follow in obtaining quality food: (a) break up the meal pattern; (b) allocate the work as equally as possible; (c) know how to cook yourself; (d) learn how to visualize the meals for color, form, and texture; and (e) always serve a well liked dessert or salad with any creamed dish.

The following officers for next year were elected in June by the members of the Cincinnati Dietetic Association: President, Ruth Roth; President-Elect, Helen Volk; Vice-President, Lois Denny; Recording Secretary, Loretta Grace Rack; Corresponding Secretary, Kathryn Gilbert; and Treasurer, Verda Sherrill.

At its April meeting, the *Columbus Journal Club*, composed of dietetic interns, discussed the subject of dietary training of the student nurse. An instructor from the University Hospital School of Nursing and a representative student nurse participated in the program, explaining what a student nurse hopes to obtain from her dietary experience and what should be included in the classes, from their point of view.

The *Columbus Dietetic Association* enjoyed an amusing meeting in May when the dietetic interns did a take-off on the year's internship in the form of a medley of nautical tunes and stories.

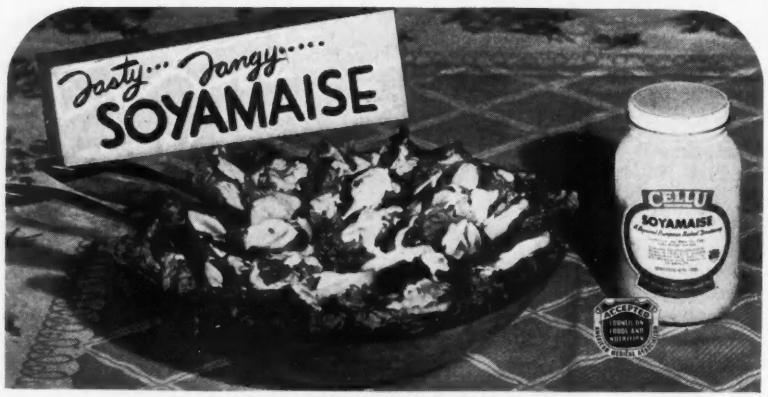
Oregon Dietetic Association. At the June meeting of the Oregon Association, Marjorie Heseltine, Director, Nutrition Unit, Children's Bureau, was guest speaker. Her topic was "Nutrition of Children in the World Today."

The *Portland Dietetic Association*, newly organized this year, joined with the state association in holding this meeting. In May, the following officers for the Portland group were elected: President, Dorthy Steen, Emanuel Hospital; President-Elect, Sylvia Matson, Reed College; Vice-President, Chedwah Van Tijn, Oregon State Board of Health; Secretary, Marie Carita Conway, Providence Hospital; and Treasurer, Olive Carlson, VA Hospital.

Pennsylvania Dietetic Association. On May 10, the annual banquet of the *Philadelphia Dietetic Association* was held, and new officers were elected. They are President, Eleanor Bigelow, Visiting Nurse Society; Vice-President, Ardenia Chapman, Dean, School of Home Economics, Drexel Institute; Secretary, Eleanor Meagher, Jefferson Hospital; and Treasurer, Christine Austin, Institute of the Pennsylvania Hospital. Guest speaker was James Hogan of the Salvation Army who described work done in one congested area to provide recreational facilities for both young and old.

Texas Dietetic Association. At the April meeting of the *South Texas Dietetic Association* (Houston), the group heard a discussion of modern poetry and contemporary literature given by G. McClure, a Yale graduate who is doing graduate work at the University of Houston. At the concluding meeting of the year, a picnic, the group elected the following officers for next year: President, Maude Rundell; Vice-President, Marjorie Foster; Secretary, Frances Lastro; and Treasurer, Mrs. Elsa L. Wright.

The last meeting of the year for the *Dallas Dietetic Association* was a field trip through Manor Bakery, followed by an election of officers for next year. They will be: President, Charlotte Clark; Vice-President, Virginia Magliolo; Secretary, Eileen Ehrhardt; and Treasurer, Virginia Rodgers.



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Association Activities

New Member, A.D.A. Public Relations Committee. Anna Tracy, Director of the administrative dietetic internship at Florida State University, Tallahassee, has recently been appointed as a member of the Public Relations Committee.

National Committees of A.D.A. Meet. On June 15 and 16 the A.D.A. *Vocational Guidance Committee* met to make plans for the remainder of the year. The revision of "Dietetics as a Profession" was discussed, along with plans for more Kodachrome slides and other audio-visual aids. The Committee met with Katharine Brown, who represented the Public Relations Committee, to discuss the part of public relations and vocational guidance in this year's convention program as well as other details.

The *Educational Exhibits Committee* met June 13. Plans for exhibiting with allied associations which are holding fall meetings were considered. Further contacts have been made with the Future Homemakers of America, which is holding regional meetings during the summer in Tennessee, California, Ohio, and the District of Columbia.

A.D.A. Exhibits. The Association exhibited with the National Vocational Guidance Association at their annual meeting in Chicago, April 18 to 21. "Dietetics, the Career with a Choice," which features the Kodachrome slides,

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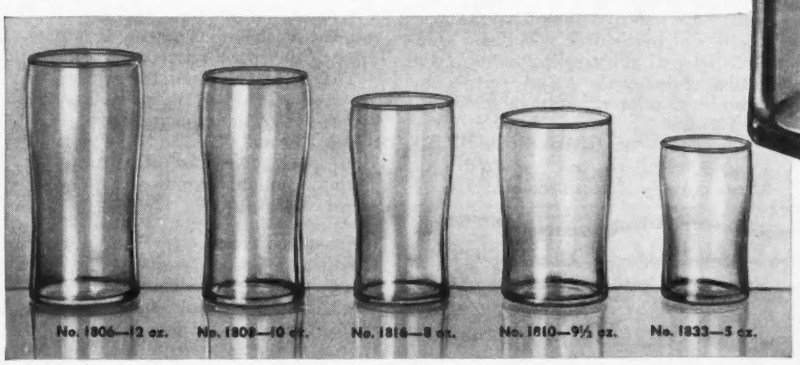

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was used. The same exhibit was sent to the University of Illinois during Farm and Home Week, June 4 and 5, and was very well received. The exhibit was again used at the annual meeting of the American Home Economics Association in San Francisco, June 28 to July 1. Also on display was the JOURNAL Panel which has been remade to feature the June, 1949, Silver Anniversary issue of the JOURNAL. This JOURNAL Panel was also displayed at the Catholic Hospital Convention held in St. Louis, June 13 to 16.

As a result of contacts made through the national office, an exhibit was requested for the Illinois Dental State Association meeting, held in Peoria, May 9 to 12. The food model exhibit which was used for the Chicago Dental Society midwinter meeting last February was sent. All arrangements for this exhibit were handled by the Illinois Dietetic Association.

A.D.A. Officers and Staff Attend Meetings. Gladys E. Hall, Executive Secretary of A.D.A. and our liaison representative to the Food and Nutrition Board of the National Research Council, attended the meeting of the Food and Nutrition Board in Washington, May 6. Mable MacLachlan, Educational Director of A.D.A., spoke at one of the sessions of the Catholic Hospital Association Convention in St. Louis, June 6 to 10.

The officers of A.D.A. met at the Association office on June 24. There was a meeting of the Joint Committee of the American Hospital Association and A.D.A. on June 22. The Constitution Revision Committee of A.D.A. met in Chicago on June 25.

North Dakota's Public Relations Program. The members of the North Dakota Dietetic Association have carried on an active public relations program this year. Open house for fourteen girls of the North Dakota Agricultural College at the Veterans Administration Hospital in Fargo was arranged by Frances Lindsay, and several other hospital dietetic departments throughout the state have held open house for high school senior girls. The Association itself has also sent out 260 copies of "Double Feature" to the principals and vocational guidance counsellors in the state, along with a request that the senior girls be given information concerning dietetics.

Pennsylvania Public Relations Activities. At the time of the state meeting held in Reading in April, one of the scripts prepared for the four radio interviews was geared to the meeting itself. The script consumed 14 min. and covered highlights of the convention and state and national Association affairs and touched on vocational guidance, as well. This script followed the outline of one of the A.D.A. scripts and could be used for any state meeting with modification.

The Pennsylvania Scholarship Loan Fund Committee has reported that fifteen colleges of home economics in the state have been notified of the establishment of this fund which is available to help a dietetic intern with her fifth year of work.

At the time of this meeting, the *Central Pennsylvania Dietetic Association* (Harrisburg) received a letter from a man who felt that dietitians should see that more nutrition is taught in the public schools. His letter was answered and nine leaflets enclosed to show him that work along this line is being done.

The Pittsburgh Public Relations Committee is also compiling a list of "talk topics" which will be mailed to women's club groups and schools with the suggestion that speakers may be obtained for these topics.

Silver Anniversary Issue Spotlighted. At Florida State University, a special display in the library has been made to call attention to the growth of the JOURNAL. On the top shelf of the display case is an open copy of the bound *Bulletin of the American Dietetic Association*, Vol. 1, 1924, then the open issue of the Silver Anniversary number, and finally an open copy of the bound copy of Volume 1. On the shelf below by itself, on a dark background to emphasize the silver cover, is a closed copy of the special issue.

That the Silver Anniversary issue was received warmly by members has been indicated by the numerous requests by dietitians and state and local associations for copies for distribution to hospital administrators and people in allied fields.

Houston, Texas. In the Houston *Chronical* magazine section of April 3, a two-page article featured Frances Low, Chief Dietitian, Methodist Hospital. Written by Dixie Oliver, Food Editor, the article was titled "Patients Are Her Problem" and showed three pictures of Miss Low engaged in her duties at the hospital.

As part of the South Texas Dietetic Association's vocational guidance program, a group of high school and college girls were entertained with a field trip. Four homemaking students and their instructor were invited from each of the seven high schools in Houston. The guests toured the new Hermann Hospital Dietary Department (which recently won the *Institutions* magazine award), and the central kitchen of the Hughes Tool Company. As part of the program, Frances Low talked on "A Career in Dietetics" to acquaint the guests with the opportunities available.

Another part of the public relations work in Houston has been the cooperation of the South Texas Dietetic Association with the Minimum Standard Budget Committee of the Family and Child Welfare Section, Houston Community Council. Loucille Langham Taylor made a food cost study to determine local prices for the Committee, and the South Texas Dietetic Association will check low-cost food budgets which the Committee is preparing for presentation to various agency groups in Houston.

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